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SKU: 9780138253776-TEST-BANK

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Use U = universal set = {0, 1, 2, 3, 4, 5, 6, 7, 8, 9}, A = {1, 2, 3, 5, 8}, B = {2, 3, 5, 7}, and C = {1, 4, 9} to find the set.

1) $B \cup C$
A) {1, 2, 3, 5, 7, 9} B) {0} C) {1, 2, 3, 4, 5, 7, 9} D) { }
Objective: (0.1) Work with Sets

2) $A \cup C$
A) {4, 6, 7, 9} B) {1, 2, 3, 4, 5, 8, 9} C) {1} D) {1, 2, 3, 5, 7, 9}
Objective: (0.1) Work with Sets

3) $A \cap B$
A) {2, 3, 5} B) {2, 3, 5, 7} C) {1, 2, 3, 5, 7, 8} D) {1, 2, 3, 5, 8}
Objective: (0.1) Work with Sets

4) $A \cap C$
A) {1, 2, 3, 5, 7, 9} B) {4, 6, 7, 9} C) {1, 2, 3, 4, 5, 7, 8, 9} D) {1}
Objective: (0.1) Work with Sets

5) $(A \cap B) \cup C$
A) {1, 2, 3, 5} B) {1, 2, 3} C) {2, 3, 5} D) {1, 2, 3, 4, 5, 9}
Objective: (0.1) Work with Sets

6) $(B \cup C) \cap A$
A) {1, 2, 3} B) {1, 2, 3, 5} C) { } D) {1, 2, 3, 4, 5, 7, 9}
Objective: (0.1) Work with Sets

7) $\overline{B}$
A) {0, 1, 4, 6, 8, 9} B) {0, 1, 4, 6, 9} C) {1, 4, 6, 8, 9} D) {0, 1, 4, 6, 7, 8, 9}
Objective: (0.1) Work with Sets

8) $\overline{A \cup B}$
A) {4, 6, 9} B) {1, 4, 6, 8, 9} C) {0, 4, 6, 9} D) {1, 2, 3, 5, 7, 8}
Objective: (0.1) Work with Sets

9) $\overline{A \cap C}$
A) {1} B) {0, 2, 3, 4, 5, 6, 7, 8, 9}
C) {1, 2, 3, 4, 5, 6, 7, 8, 9} D) {1, 2, 3, 4, 5, 7, 8, 9}
Objective: (0.1) Work with Sets

10) $\overline{B} \cap \overline{C}$
A) {1, 2, 3, 4, 5, 7, 9} B) { } C) {6, 8} D) {0, 6, 8}
Objective: (0.1) Work with Sets

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List all the elements of B that belong to the given set.

11) $B = \left\{5, \sqrt{8}, -3, 0, \frac{3}{4}, -\frac{4}{3}, 6.8\right\}$

Integers

A) {5, 0} B) {5, –3} C) {5, 0, $\sqrt{8}$} D) {5, –3, 0}

Objective: (0.1) Classify Numbers

12) $B = \left\{2, \sqrt{8}, -3, 0, \frac{2}{3}, -\frac{3}{2}, 4.3\right\}$

Natural numbers

A) {2, 0} B) {2} C) {–3, 0, 2} D) $\left\{2, 0, -\frac{3}{2}\right\}$

Objective: (0.1) Classify Numbers

13) $B = \left\{16, \sqrt{7}, -6, 0, \frac{0}{4}\right\}$

Real numbers

A) {16, –6, 0} B) $\{16, -6\}$ C) $\left\{16, -6, 0, \frac{0}{4}\right\}$ D) $\left\{16, \sqrt{7}, -6, 0, \frac{0}{4}\right\}$

Objective: (0.1) Classify Numbers

14) $B = \left\{16, \sqrt{7}, -19, 0, \frac{0}{6}, 0.2\right\}$

Rational numbers

A) {16, 0} B) $\left\{\sqrt{7}, \frac{0}{6}, 0.2\right\}$ C) $\left\{16, -19, 0, \frac{0}{6}, 0.2\right\}$ D) {$\sqrt{7}$}

Objective: (0.1) Classify Numbers

15) $B = \left\{8, \sqrt{5}, -11, 0, \frac{0}{7}, 0.63\right\}$

Irrational numbers

A) $\left\{\sqrt{5}, \frac{0}{7}, 0.63\right\}$ B) $\left\{\sqrt{5}, \frac{0}{7}\right\}$ C) {$\sqrt{5}$, 0.63} D) {$\sqrt{5}$}

Objective: (0.1) Classify Numbers

16) $B = \{8, \sqrt{5}, -9, 0, \frac{3}{5}, -\frac{5}{3}, 3.7, 25\pi, 0.255255255...\}$

Integers

A) {8, 0, $\sqrt{5}$} B) {8, 0} C) {8, –9, 0} D) {8, –9}

Objective: (0.1) Classify Numbers

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17) B = $\{19, \sqrt{6}, -15, 0, \frac{2}{9}, -\frac{9}{2}, 7.5, 6\pi, 0.646464...\}$

Natural numbers

A) {–15, 0, 19} B) $\left\{19, 0, -\frac{9}{2}\right\}$ C) {19, 0} D) {19}

Objective: (0.1) Classify Numbers

18) B = $\{17, \sqrt{6}, -13, 0, \frac{0}{7}, \sqrt{25}, 0.71, -6\pi, 0.252525...\}$

Rational numbers

A) $\left\{17, -13, 0, \frac{0}{7}, 0.71, 0.252525...\right\}$ B) $\left\{17, -13, 0, \frac{0}{7}, \sqrt{25}, 0.71, 0.252525...\right\}$

C) $\left\{17, -13, 0, \frac{0}{7}, 0.71\right\}$ D) $\left\{17, -13, 0, \frac{0}{7}, \sqrt{25}, 0.71, -6\pi, 0.252525...\right\}$

Objective: (0.1) Classify Numbers

19) B = $\{1, \sqrt{5}, -5, 0, \frac{0}{4}, , 0.44, -5\pi, 0.444...\}$

Irrational numbers

A) $\left\{\sqrt{5}, \frac{0}{4}, -5\pi\right\}$ B) $\{\sqrt{5}, -5\pi\}$ C) $\{\sqrt{5}, -5\pi, 0.444...\}$ D) $\{\sqrt{5}\}$

Objective: (0.1) Classify Numbers

Approximate the number rounded to three decimal places, and truncated to three decimal places.

20) 4.9617

A) 4.961
4.962

B) 4.962
4.962

C) 4.962
4.961

D) 4.963
4.961

Objective: (0.1) Classify Numbers

21) 0.28571429

A) 0.286
0.285

B) 0.286
0.286

C) 0.285
0.286

D) 0.287
0.285

Objective: (0.1) Classify Numbers

22) $\frac{18}{7}$

A) 2.571
2.571

B) 2.571
2.572

C) 2.572
2.572

D) 2.572
2.571

Objective: (0.1) Classify Numbers

Write the statement using symbols.

23) The sum of 16 and 8 is 24.

A) 16 + 8 = 24 B) 16 · 8 = 128 C) $\frac{16}{8} = 2$ D) 16 – 8 = 8

Objective: (0.1) Evaluate Numerical Expressions

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24) The difference 21 less 7 equals 14.

A) $21 + 7 = 28$ B) $21 - 7 = 14$ C) $21 \cdot 7 = 147$ D) $\frac{21}{7} = 3$

Objective: (0.1) Evaluate Numerical Expressions

25) The product of 8 and 2 equals 16.

A) $8 - 2 = 6$ B) $\frac{8}{2} = 4$ C) $8 \cdot 2 = 16$ D) $8 + 2 = 10$

Objective: (0.1) Evaluate Numerical Expressions

26) The quotient 12 divided by 4 is 3.

A) $12 \cdot 4 = 48$ B) $12 - 4 = 8$ C) $12 + 4 = 16$ D) $\frac{12}{4} = 3$

Objective: (0.1) Evaluate Numerical Expressions

27) The sum of four times x and 5 decreased by 7 is 8.

A) $7 - (4x + 5) = 8$ B) $4x + 5 - 7 = 8$ C) $4(x + 5) - 7 = 8$ D) $4(x + 5 - 7) = 8$

Objective: (0.1) Evaluate Numerical Expressions

28) Three times the difference of x and 8 is –10.

A) $3(x - 8) = -10$ B) $3 - x - 8 = -10$ C) $3 + x - 8 = -10$ D) $3x - 8 = -10$

Objective: (0.1) Evaluate Numerical Expressions

29) The quotient of x and the sum of 5 and x.

A) $\frac{x + 5}{x}$ B) $\frac{x}{5 + x}$ C) $x(5 + x)$ D) $x + 5 + x$

Objective: (0.1) Evaluate Numerical Expressions

Evaluate the expression.

30) $2 + 6 - 9$

A) –13 B) 5 C) –1 D) 17

Objective: (0.1) Evaluate Numerical Expressions

31) $2 + \frac{3}{4}$

A) $\frac{8}{3}$ B) $\frac{11}{4}$ C) $\frac{11}{3}$ D) $\frac{8}{4}$

Objective: (0.1) Evaluate Numerical Expressions

32) $8 \cdot [4(2 - 8) - 8]$

A) –256 B) –88 C) 192 D) 188

Objective: (0.1) Evaluate Numerical Expressions

33) $2 \cdot [4 + 2 \cdot (7 + 2)]$

A) 104 B) 44 C) 26 D) 108

Objective: (0.1) Evaluate Numerical Expressions

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34) $-5 - (-1 + 2 \cdot 6 + 8)$

A) -26 B) -8 C) -24 D) 14

Objective: (0.1) Evaluate Numerical Expressions

35) $\frac{42}{48} \cdot \frac{6}{7}$

A) $\frac{3}{4}$ B) $\frac{8}{7}$ C) $\frac{4}{3}$ D) $\frac{7}{8}$

Objective: (0.1) Evaluate Numerical Expressions

36) $\frac{4}{3} \cdot (2 + 1)$

A) 1 B) $\frac{8}{3}$ C) 4 D) 12

Objective: (0.1) Evaluate Numerical Expressions

37) $\frac{1}{3} \cdot \left(7 - \frac{1}{6}\right) + 10$

A) $\frac{73}{6}$ B) $\frac{17}{6}$ C) $\frac{101}{6}$ D) $\frac{221}{18}$

Objective: (0.1) Evaluate Numerical Expressions

38) $\frac{4 + 10}{3 + 2}$

A) $-\frac{6}{5}$ B) -6 C) $\frac{14}{5}$ D) 14

Objective: (0.1) Evaluate Numerical Expressions

39) $\frac{2 - 6}{6 - 2}$

A) -1 B) -4 C) $\frac{1}{3}$ D) $-\frac{1}{3}$

Objective: (0.1) Evaluate Numerical Expressions

40) $\frac{1}{9} + \frac{4}{5}$

A) $\frac{41}{14}$ B) $\frac{1}{9}$ C) $\frac{41}{45}$ D) $\frac{5}{14}$

Objective: (0.1) Evaluate Numerical Expressions

41) $\frac{5}{8} - \frac{1}{7}$

A) $\frac{1}{2}$ B) $\frac{27}{8}$ C) $\frac{1}{14}$ D) $\frac{27}{56}$

Objective: (0.1) Evaluate Numerical Expressions

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42) $\dfrac{\frac{3}{11}}{\frac{2}{5}}$

A) $\frac{22}{15}$ B) $\frac{55}{6}$ C) $\frac{6}{55}$ D) $\frac{15}{22}$

Objective: (0.1) Evaluate Numerical Expressions

43) $\frac{1}{9} + \frac{1}{4} \cdot \frac{1}{5}$

A) $\frac{41}{36}$ B) $\frac{1}{90}$ C) $\frac{13}{180}$ D) $\frac{29}{180}$

Objective: (0.1) Evaluate Numerical Expressions

Use the Distributive Property to remove the parentheses.

44) $6(x + 4)$

A) $6x + 4$ B) $6x + 24$ C) $x + 24$ D) $24x$

Objective: (0.1) Work with Properties of Real Numbers

45) $3x(x + 9)$

A) $x^2 + 27x$ B) $27x^2$ C) $3x^2 + 27x$ D) $3x^2 + 9$

Objective: (0.1) Work with Properties of Real Numbers

46) $8(2x + 4)$

A) $48x$ B) $16x + 4$ C) $16x + 32$ D) $10x + 12$

Objective: (0.1) Work with Properties of Real Numbers

47) $2\left(\frac{3}{2}x - \frac{1}{6}\right)$

A) $3x - \frac{1}{2}$ B) $3x - \frac{1}{3}$ C) $3x - \frac{1}{6}$ D) $\frac{3}{2}x - \frac{1}{3}$

Objective: (0.1) Work with Properties of Real Numbers

48) $(x - 8)(x - 1)$

A) $x^2 + 8x - 9$ B) $x^2 - 9x + 8$ C) $x^2 - 10x + 8$ D) $x^2 - 9x - 9$

Objective: (0.1) Work with Properties of Real Numbers

49) $(x - 3)(x + 11)$

A) $x^2 - 33x + 8$ B) $x^2 + 8x - 33$ C) $x^2 + 7x - 33$ D) $x^2 + 8x + 8$

Objective: (0.1) Work with Properties of Real Numbers

50) $(x + 9)(x - 9)$

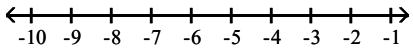
A) $x^2 + 18x - 81$ B) $x^2 - 81$ C) $x^2 - 18$ D) $x^2 - 18x - 81$

Objective: (0.1) Work with Properties of Real Numbers

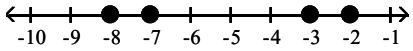
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On the real number line, label the points with the given coordinates.

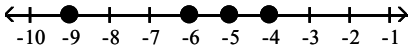
51) –9, –7, –5, –3



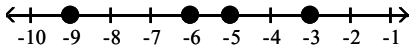
A)



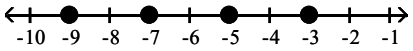
B)



C)

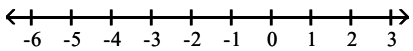


D)

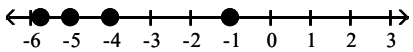


Objective: (0.2) Graph Inequalities

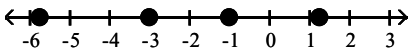
52) –5.75, –3, –1, 1.25



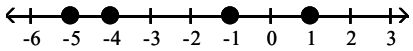
A)



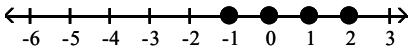
B)



C)

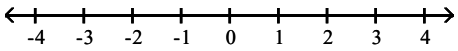


D)

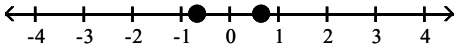


Objective: (0.2) Graph Inequalities

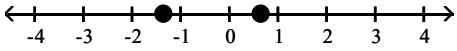
53) $\frac{4}{3}, -\frac{4}{3}$



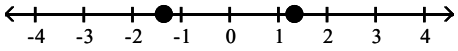
A)



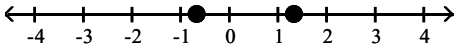
B)



C)



D)



Objective: (0.2) Graph Inequalities

Insert <, >, or = to make the statement true.

54) –4 ____ –2

A) > B) < C) =

Objective: (0.2) Graph Inequalities

55) 1.8 ____ 0.8

A) = B) > C) <

Objective: (0.2) Graph Inequalities

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56) -38 ____ -39

A) = B) > C) <

Objective: (0.2) Graph Inequalities

57) 18 ____ -18

A) = B) > C) <

Objective: (0.2) Graph Inequalities

58) $\frac{1}{6}$ ____ 0.167

A) > B) < C) =

Objective: (0.2) Graph Inequalities

59) 1.73 ____ $\sqrt{3}$

A) = B) < C) >

Objective: (0.2) Graph Inequalities

60) 3.14 ____ π

A) > B) < C) =

Objective: (0.2) Graph Inequalities

Write the statement as an inequality.

61) z is positive

A) $z \geq 0$ B) $z > 0$ C) $z \leq 0$ D) $z < 0$

Objective: (0.2) Graph Inequalities

62) y is greater than -97

A) $y > -97$ B) $y \geq -97$ C) $y \leq -97$ D) $y < -97$

Objective: (0.2) Graph Inequalities

63) y is greater than or equal to 45

A) $y < 45$ B) $y \geq 45$ C) $y \leq 45$ D) $y > 45$

Objective: (0.2) Graph Inequalities

64) z is less than or equal to -9

A) $z \leq -9$ B) $z = -9$ C) $z < -9$ D) $z > -9$

Objective: (0.2) Graph Inequalities

65) x is less than 6

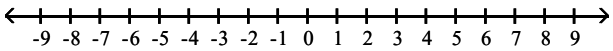
A) $x \geq 6$ B) $x \leq 6$ C) $x > 6$ D) $x < 6$

Objective: (0.2) Graph Inequalities

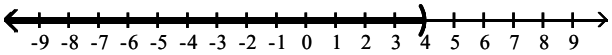
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Graph the numbers on the real number line.

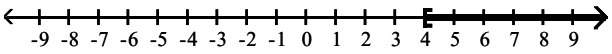
66) $x > 4$



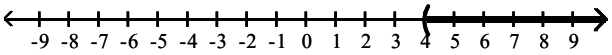
A)



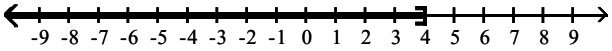
B)



C)

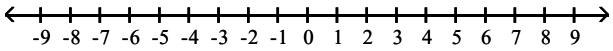


D)

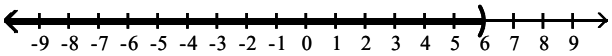


Objective: (0.2) Graph Inequalities

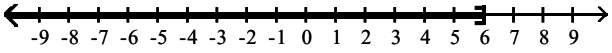
67) $x < 6$



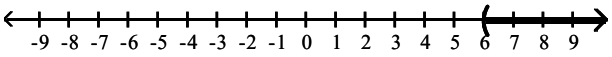
A)



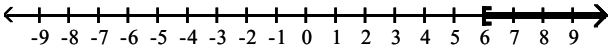
B)



C)



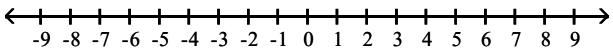
D)



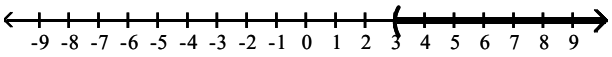
Objective: (0.2) Graph Inequalities

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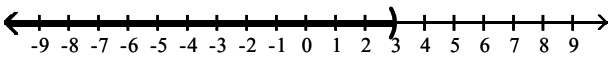
68) $x \geq 3$



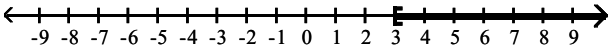
A)



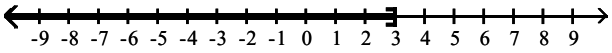
B)



C)

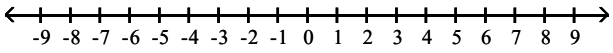


D)

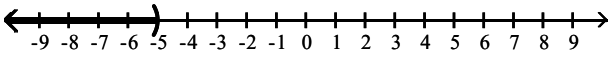


Objective: (0.2) Graph Inequalities

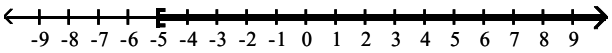
69) $x \leq -5$



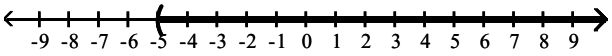
A)



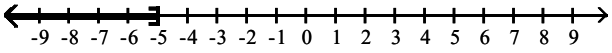
B)



C)



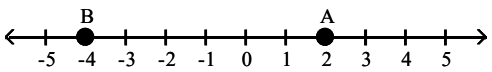
D)



Objective: (0.2) Graph Inequalities

Use the given real number line to compute the distance.

70) Find d(A, B)



A) 6 B) 7 C) 5 D) –6

Objective: (0.2) Find Distance on the Real Number Line

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Evaluate the expression using the given values.

71) $x + 2y$ $x = -4, y = -2$

A) −6 B) −2 C) −10 D) −8

Objective: (0.2) Evaluate Algebraic Expressions

72) $-10xy + 8y - 4$ $x = -2, y = -2$

A) −60 B) 20 C) −52 D) −56

Objective: (0.2) Evaluate Algebraic Expressions

73) $-8x + y$ $x = 3, y = -2$

A) −10 B) 22 C) 1 D) −26

Objective: (0.2) Evaluate Algebraic Expressions

74) $\frac{4x - 7y}{8}$ $x = 10, y = 2$

A) $\frac{31}{4}$ B) $\frac{13}{4}$ C) $\frac{27}{4}$ D) $\frac{33}{8}$

Objective: (0.2) Evaluate Algebraic Expressions

75) $\frac{9x - 5y}{x + 12}$ $x = 7, y = 8$

A) $\frac{23}{20}$ B) $\frac{37}{20}$ C) $\frac{37}{19}$ D) $\frac{23}{19}$

Objective: (0.2) Evaluate Algebraic Expressions

76) $\frac{6xy + 50}{x}$ $x = 5, y = 7$

A) 92 B) 10 C) 52 D) 16

Objective: (0.2) Evaluate Algebraic Expressions

77) $|x - y|$ $x = -8, y = 2$

A) −10 B) 6 C) −6 D) 10

Objective: (0.2) Evaluate Algebraic Expressions

78) $|x| - |y|$ $x = -5, y = 2$

A) 7 B) −3 C) 3 D) −7

Objective: (0.2) Evaluate Algebraic Expressions

79) $|6x - 7y|$ $x = 6, y = 8$

A) −92 B) 20 C) −20 D) 92

Objective: (0.2) Evaluate Algebraic Expressions

80) $\frac{|x|}{x} + \frac{|y|}{y}$ $x = 2$ and $y = -3$

A) 2 B) 1 C) −1 D) 0

Objective: (0.2) Evaluate Algebraic Expressions

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81) $|9x + 6y|$ $x = -4, y = -1$

A) 33 B) 15 C) 42 D) 30

Objective: (0.2) Evaluate Algebraic Expressions

82) $4|x| + 5|y|$ $x = 5, y = -9$

A) 25 B) −65 C) 65 D) −25

Objective: (0.2) Evaluate Algebraic Expressions

Use the formula $C = \frac{5}{9}(F - 32)$ for converting degrees Fahrenheit into degrees Celsius to find the Celsius measure of the Fahrenheit temperature.

83) $F = 86°$

A) 30° C B) 25° C C) 40° C D) 35° C

Objective: (0.2) Evaluate Algebraic Expressions

Express the statement as an equation involving the indicated variables.

84) The area A of a rectangle is the product of its length l and its width w.

A) $A = 2(l + w)$ B) $A = \frac{l}{w}$ C) $A = lw$ D) $A = l + w$

Objective: (0.2) Evaluate Algebraic Expressions

85) The perimeter P of a rectangle is twice the sum of its length l and its width w.

A) $P = 2lw$ B) $P = l + w$ C) $P = 2(l + w)$ D) $P = lw$

Objective: (0.2) Evaluate Algebraic Expressions

86) The circumference C of a circle is the product of π and its diameter d.

A) $C = 2\pi d$ B) $C = \pi + d$ C) $C = \frac{\pi}{d}$ D) $C = \pi d$

Objective: (0.2) Evaluate Algebraic Expressions

87) The area A of a triangle is one-half the product of its base b and its height h.

A) $A = \frac{1}{2}(b + h)$ B) $A = 2bh$ C) $A = bh$ D) $A = \frac{1}{2}bh$

Objective: (0.2) Evaluate Algebraic Expressions

88) The volume V of a sphere is $\frac{4}{3}$ times π times the cube of the radius r.

A) $V = \frac{4}{3}\pi \sqrt[3]{r}$ B) $V = \frac{4}{3}\pi r^3$ C) $V = \frac{4}{3}\pi r^2$ D) $V = \frac{4}{3}\pi r$

Objective: (0.2) Evaluate Algebraic Expressions

89) The surface area S of a sphere is 4 times π times the square of the radius r.

A) $S = 4\pi\sqrt{r}$ B) $S = 4\pi r^2$ C) $S = 4\pi r$ D) $S = \pi r^2$

Objective: (0.2) Evaluate Algebraic Expressions

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90) The volume V of a cube is the cube of the length x of a side.

A) $V = x^3$ B) $V = \sqrt[3]{x}$ C) $V = x^2$ D) $V = 3x$

Objective: (0.2) Evaluate Algebraic Expressions

91) The surface area S of a cube is 6 times the square of the length x of a side.

A) $S = 6x$ B) $S = 6x^2$ C) $S = 6 + x^2$ D) $S = x^2$

Objective: (0.2) Evaluate Algebraic Expressions

Solve the problem.

92) The weekly production cost C of manufacturing x calendars is given by $C(x) = 34 + 4x$, where the variable C is in dollars. What is the cost of producing 213 calendars?

A) $7,246.00 B) $247.00 C) $886.00 D) $852.00

Objective: (0.2) Evaluate Algebraic Expressions

93) At the beginning of the month, Christopher had a balance of $178 in his checking account. During the next month, he wrote a check for $52, deposited $76, and wrote another check for $200. What was his balance at the end of the month?

A) $150 B) $2 C) –$150 D) –$2

Objective: (0.2) Evaluate Algebraic Expressions

Determine which value(s), if any, must be excluded from the domain of the variable in the expression.

94) $\dfrac{x^2 - 16}{x}$

A) $x = 4, x = 0$ B) $x = 4, x = -4$ C) $x = -4$ D) $x = 0$

Objective: (0.2) Determine the Domain of a Variable

95) $\dfrac{7x - 3}{x^2 - 16}$

A) $x = 4, x = -4$ B) $x = \dfrac{3}{7}$ C) $x = 4$ D) $x = 16$

Objective: (0.2) Determine the Domain of a Variable

96) $\dfrac{x^3 + 6x^4}{x^2 + 49}$

A) $x = -7$ B) $x = 0, x = -\dfrac{1}{6}$ C) $x = -49$ D) none

Objective: (0.2) Determine the Domain of a Variable

97) $\dfrac{x^2 + 5x - 13}{x^3 - 16x}$

A) $x = 0$ B) $x = 4, x = -4$ C) $x = 4, x = -4, x = 0$ D) $x = 4, x = 0$

Objective: (0.2) Determine the Domain of a Variable

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98) $\frac{x}{x-2}$

A) $x = -2$ B) $x = 0$ C) $x = 2$ D) none

Objective: (0.2) Determine the Domain of a Variable

99) $\frac{2}{x+2}$

A) $x = 2$ B) $x = -2$ C) $x = 0$ D) none

Objective: (0.2) Determine the Domain of a Variable

100) $\frac{x-8}{x-4}$

A) $x = -4$ B) $x = 0$ C) $x = 4$ D) none

Objective: (0.2) Determine the Domain of a Variable

Simplify the expression.

101) 5^3

A) −125 B) 125 C) 15 D) −15

Objective: (0.2) Use the Laws of Exponents

102) -6^3

A) 18 B) −18 C) −216 D) 216

Objective: (0.2) Use the Laws of Exponents

103) 2^{-3}

A) $\frac{1}{6}$ B) 8 C) −8 D) $\frac{1}{8}$

Objective: (0.2) Use the Laws of Exponents

104) $(-3)^{-2}$

A) 9 B) $-\frac{1}{9}$ C) $\frac{1}{9}$ D) −9

Objective: (0.2) Use the Laws of Exponents

105) -5^{-3}

A) −125 B) 125 C) $\frac{1}{15}$ D) $-\frac{1}{125}$

Objective: (0.2) Use the Laws of Exponents

106) $(-5)^3$

A) 15 B) 125 C) −15 D) −125

Objective: (0.2) Use the Laws of Exponents

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107) $3^{-6} \cdot 3^4$

A) 3 B) 9 C) $\frac{1}{27}$ D) $\frac{1}{9}$

Objective: (0.2) Use the Laws of Exponents

108) $(2^{-2})^{-2}$

A) $\frac{1}{16}$ B) $\frac{1}{8}$ C) 8 D) 16

Objective: (0.2) Use the Laws of Exponents

Simplify the expression. Express the answer so that all exponents are positive. Whenever an exponent is 0 or negative, we assume that the base is not 0.

109) $(3xy)^2$

A) $9x^2y^2$ B) $9xy$ C) $\frac{1}{9x^2y^2}$ D) $3x^2y^2$

Objective: (0.2) Use the Laws of Exponents

110) $(10x^3)^{-2}$

A) $\frac{1}{100x^6}$ B) $\frac{x^6}{100}$ C) $100x^6$ D) $\frac{100}{x^6}$

Objective: (0.2) Use the Laws of Exponents

111) $(-2x^3)^{-1}$

A) $\frac{1}{2x^3}$ B) $-\frac{1}{8x^3}$ C) $-\frac{1}{2x^3}$ D) $\frac{1}{8x^3}$

Objective: (0.2) Use the Laws of Exponents

112) $(x^4y^{-1})^8$

A) $x^{32}y^8$ B) $\frac{x^{32}}{y^8}$ C) $\frac{1}{x^{32}y^8}$ D) $\frac{y^8}{x^{32}}$

Objective: (0.2) Use the Laws of Exponents

113) $(x^{-9}y)^7$

A) $\frac{y^7}{x^{63}}$ B) $\frac{y^7}{x^9}$ C) $x^{63}y^7$ D) $\frac{1}{x^{63}y^7}$

Objective: (0.2) Use the Laws of Exponents

114) $\frac{x^{-2}y^2}{xy^6}$

A) $\frac{x}{y^4}$ B) $\frac{y^4}{x^3}$ C) $\frac{1}{xy^4}$ D) $\frac{1}{x^3y^4}$

Objective: (0.2) Use the Laws of Exponents

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115) $\frac{x^{-3}y^3}{x^6y^{10}}$

A) $\frac{y^7}{x^9}$ B) $\frac{1}{x^9y^7}$ C) x^9y^7 D) $\frac{x^9}{y^7}$

Objective: (0.2) Use the Laws of Exponents

116) $\left(\frac{9x^{-1}}{5y^{-1}}\right)^{-2}$

A) $\frac{25x^2}{81y^2}$ B) $\frac{81x^2}{25y^2}$ C) $\frac{81y^2}{25x^2}$ D) $\frac{25y^2}{81x^2}$

Objective: (0.2) Use the Laws of Exponents

117) $\left(\frac{7x^{-2}}{4y^{-2}}\right)^{-3}$

A) $\frac{64y^6}{343x^6}$ B) $\frac{64x^6}{343y^6}$ C) $\frac{343x^{23}}{64y^{23}}$ D) $\frac{343x^6}{64y^6}$

Objective: (0.2) Use the Laws of Exponents

118) $(x^{-5}y^8)^{-5}z^4$

A) $\frac{x^{25}}{y^{40}z^4}$ B) $\frac{x^{25}z^4}{y^{40}}$ C) $\frac{y^{40}z^4}{x^{25}}$ D) $\frac{y^{40}}{x^{25}z^4}$

Objective: (0.2) Use the Laws of Exponents

119) $\left(\frac{-2x^3y^{-3}}{9z^5}\right)^{-2}$

A) $\frac{81y^6z^{10}}{4x^6}$ B) $\frac{81y^6}{4x^6z^{10}}$ C) $\frac{81z^{10}}{4x^6y^6}$ D) $\frac{4x^6}{81y^6z^{10}}$

Objective: (0.2) Use the Laws of Exponents

Evaluate the expression using the given value of the variables.

120) $(x + 3y)^2$ for $x = 3$, $y = 4$

A) 15 B) 225 C) 36 D) 30

Objective: (0.2) Use the Laws of Exponents

121) $-8x^{-1}y^2$ for $x = -2$, $y = -2$

A) 16 B) 1 C) $\frac{1}{4}$ D) 64

Objective: (0.2) Use the Laws of Exponents

122) $5x^2 - 2y^2$ for $x = -2$, $y = -2$

A) -18 B) 28 C) 12 D) 24

Objective: (0.2) Use the Laws of Exponents

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123) $5x^3 + 5x^2 - 2x + 4$ for $x = 2$

A) 20 B) 60 C) 52 D) 68

Objective: (0.2) Use the Laws of Exponents

Solve.

124) What is the value of $\frac{(6{,}666)^5}{(2{,}222)^5}$?

A) $(2{,}222)^5$ B) 486 C) 243 D) $(3{,}333)^5$

Objective: (0.2) Use the Laws of Exponents

Simplify the expression.

125) $\sqrt{4}$

A) 2 B) $\frac{1}{4}$ C) 16 D) not a real number

Objective: (0.2) Evaluate Square Roots

126) $\sqrt{(-2)^2}$

A) 2 B) $\frac{1}{4}$ C) 16 D) not a real number

Objective: (0.2) Evaluate Square Roots

Find the value of the expression using the given values.

127) $\sqrt{x^2}$ $x = -3$

A) $\sqrt{6}$ B) 3 C) -3 D) $-\sqrt{6}$

Objective: (0.2) Evaluate Square Roots

128) $(\sqrt{x})^2$ $x = 2$

A) 4 B) $\frac{1}{4}$ C) $\frac{1}{2}$ D) 2

Objective: (0.2) Evaluate Square Roots

129) $\sqrt{x^2 + y^2}$ $x = 9, y = 12$

A) 8 B) 14 C) 11 D) 15

Objective: (0.2) Evaluate Square Roots

130) $\sqrt{x^2 + y^2}$ $x = -4, y = 3$

A) 5 B) -1 C) 12 D) 7

Objective: (0.2) Evaluate Square Roots

131) $\sqrt{x^2} + \sqrt{y^2}$ $x = -8, y = -4$

A) 4 B) 12 C) 80 D) -4

Objective: (0.2) Evaluate Square Roots

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132) y^x $x = -3, y = 6$

A) -216 B) $-\frac{1}{216}$ C) 216 D) $\frac{1}{216}$

Objective: (0.2) Evaluate Square Roots

Use a calculator to evaluate the expression. Round the answer to three decimal places.

133) $(-1.05)^{-5}$

A) 0.784 B) -0.784 C) -1.276 D) 1.276

Objective: (0.2) Use a Calculator to Evaluate Exponents

134) $-(0.96)^{-5}$

A) 1.226 B) -0.815 C) 0.815 D) -1.226

Objective: (0.2) Use a Calculator to Evaluate Exponents

135) $(-4.77)^{-2}$

A) 22.753 B) -0.044 C) -22.753 D) 0.044

Objective: (0.2) Use a Calculator to Evaluate Exponents

Write the number in scientific notation.

136) 5,429

A) 5.429×10^1 B) 5.429×10^4 C) 5.429×10^{-3} D) 5.429×10^3

Objective: (0.2) Use Scientific Notation

137) 569.5

A) 5.695×10^3 B) 5.695×10^{-3} C) 5.695×10^2 D) 5.695×10^{-2}

Objective: (0.2) Use Scientific Notation

138) 67.7869

A) 6.77869×10^{-2} B) 6.77869×10^{-1} C) 6.77869×10^2 D) 6.77869×10^1

Objective: (0.2) Use Scientific Notation

139) 610,000

A) 6.1×10^{-4} B) 6.1×10^4 C) 6.1×10^{-5} D) 6.1×10^5

Objective: (0.2) Use Scientific Notation

140) 84,000,000

A) 8.4×10^{-7} B) 8.4×10^8 C) 8.4×10^7 D) 8.4×10^{-8}

Objective: (0.2) Use Scientific Notation

141) 0.000262

A) 2.62×10^{-3} B) 2.62×10^{-5} C) 2.62×10^4 D) $2.62 \circ 10^{-4}$

Objective: (0.2) Use Scientific Notation

142) 0.000055915

A) 5.5915×10^5 B) 5.5915 ± 10^{-4} C) 5.5915×10^4 D) 5.5915×10^{-5}

Objective: (0.2) Use Scientific Notation

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143) 0.000007122

A) 7.122×10^{-7} B) 7.122×10^{6} C) 7.122×10^{-6} D) 7.122×10^{-5}

Objective: (0.2) Use Scientific Notation

144) 0.000000323018

A) 3.23018×10^{-7} B) 3.23018×10^{6} C) 3.23018×10^{7} D) 3.23018×10^{-6}

Objective: (0.2) Use Scientific Notation

145) 0.000000054906

A) 5.4906×10^{-8} B) 5.4906×10^{8} C) 5.4906×10^{-9} D) 5.4906×10^{-7}

Objective: (0.2) Use Scientific Notation

146) In a certain state, the railway system carried a total of 152,000,000,000 passengers.

A) 15.2×10^{11} B) 1.52×10^{11} C) 1.52×10^{10} D) 1.52×10^{12}

Objective: (0.2) Use Scientific Notation

147) A business projects next year's profits to be $4,880,000.

A) 4.88×10^{7} B) 4.88×10^{-7} C) 4.88×10^{5} D) 4.88×10^{6}

Objective: (0.2) Use Scientific Notation

148) A computer compiles a program in 0.0000566 seconds.

A) 5.66×10^{-6} B) 5.66×10^{-5} C) 5.66×10^{-7} D) 5.66×10^{4}

Objective: (0.2) Use Scientific Notation

Write the number as a decimal.

149) 4.59×10^{4}

A) 4,590 B) 45,900 C) 183.6 D) 459,000

Objective: (0.2) Use Scientific Notation

150) 5.209×10^{7}

A) 364.63 B) 52,090,000 C) 520,900,000 D) 5,209,000

Objective: (0.2) Use Scientific Notation

151) 4.9165×10^{4}

A) 196.66 B) 491,650 C) 49,165 D) 4,916.5

Objective: (0.2) Use Scientific Notation

152) 5.32×10^{-4}

A) −532,000 B) 0.000532 C) 0.0000532 D) 0.00532

Objective: (0.2) Use Scientific Notation

153) 8.893×10^{-5}

A) −889,300 B) 0.0008893 C) 0.00008893 D) 0.000008893

Objective: (0.2) Use Scientific Notation

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154) 1.626×10^{-6}

A) 0.000001626 B) 0.0000001626 C) 0.00001626 D) –1,626,000

Objective: (0.2) Use Scientific Notation

155) 5.0387×10^{-7}

A) –503,870,000 B) 0.00000050387 C) 0.0000050387 D) 0.000000050387

Objective: (0.2) Use Scientific Notation

156) There are 2.869×10^{2} miles of highways, roads, and streets in a certain city.

A) 28.69 B) 286.9 C) 28,690 D) 2,869

Objective: (0.2) Use Scientific Notation

The lengths of the legs of a right triangle are given. Find the hypotenuse.

157) a = 7, b = 24

A) 625 B) 25 C) 20 D) 5

Objective: (0.3) Use the Pythagorean Theorem and Its Converse

158) a = 9, b = 12

A) 14 B) 8 C) 11 D) 15

Objective: (0.3) Use the Pythagorean Theorem and Its Converse

The lengths of the sides of a triangle are given. Determine if the triangle is a right triangle. If it is, identify the hypotenuse.

159) 5, 12, 13

A) right triangle; 5 B) right triangle; 13 C) right triangle; 12 D) not right triangle

Objective: (0.3) Use the Pythagorean Theorem and Its Converse

160) 1, 2, 3

A) right triangle; 2 B) right triangle; 3 C) right triangle; 1 D) not right triangle

Objective: (0.3) Use the Pythagorean Theorem and Its Converse

161) 6, 8, 10

A) right triangle; 6 B) right triangle; 8 C) right triangle; 10 D) not a right triangle

Objective: (0.3) Use the Pythagorean Theorem and Its Converse

162) 10, 24, 26

A) right triangle; 10 B) right triangle; 26 C) right triangle; 24 D) not a right triangle

Objective: (0.3) Use the Pythagorean Theorem and Its Converse

163) 21, 72, 75

A) right triangle; 75 B) right triangle; 21 C) right triangle; 72 D) not a right triangle

Objective: (0.3) Use the Pythagorean Theorem and Its Converse

164) 10, 20, 25

A) right triangle; 20 B) right triangle; 25 C) right triangle; 10 D) not a right triangle

Objective: (0.3) Use the Pythagorean Theorem and Its Converse

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165) 12, 16, 24

A) right triangle; 12 B) right triangle; 16 C) right triangle; 24 D) not a right triangle

Objective: (0.3) Use the Pythagorean Theorem and Its Converse

Solve. Use the fact that the radius of the Earth is 3960 miles and 1 mile = 5280 feet.

166) A guard tower at a state prison stands 92 feet tall. How far can a guard see from the top of the tower? Round to the nearest tenth of a mile.

A) 858.5 mi B) 5,600.3 mi C) 11.7 mi D) 16.6 mi

Objective: (0.3) Use the Pythagorean Theorem and Its Converse

167) A person who is 3 feet tall is standing on the beach and looks out onto the ocean. Suddenly, a ship appears on the horizon. How far is the ship from the shore? Round to the nearest tenth of a mile.

A) 3 mi B) 154.2 mi C) 5,600.3 mi D) 2.1 mi

Objective: (0.3) Use the Pythagorean Theorem and Its Converse

Solve the problem.

168) Find the area A of a rectangle with length 2 yd and width 15 yd.

A) $A = 60\ \text{yd}^2$ B) $A = 8\ \text{yd}^2$ C) $A = 17\ \text{yd}^2$ D) $A = 30\ \text{yd}^2$

Objective: (0.3) Know Geometry Formulas

169) Find the area A of a rectangle with length 6.2 m and width 11.9 m.

A) $A = 73.78\ \text{m}^2$ B) $A = 147.56\ \text{m}^2$ C) $A = 24.8\ \text{m}^2$ D) $A = 18.1\ \text{m}^2$

Objective: (0.3) Know Geometry Formulas

170) Find the area A of a triangle with height 8 in and base 9 in.

A) $A = 36$ in B) $A = 36\ \text{in}^2$ C) $A = 72$ in D) $A = 72\ \text{in}^2$

Objective: (0.3) Know Geometry Formulas

171) Find the area A and circumference C of a circle of radius 6 cm. Express the answer in terms of π.

A) $A = 36\pi\ \text{cm}^2$; $C = 12\pi$ cm B) $A = 24\pi\ \text{cm}^2$; $C = 6\pi$ cm

C) $A = 12\pi\ \text{cm}^2$; $C = 12\pi$ cm D) $A = 144\pi\ \text{cm}^2$; $C = 6\pi$ cm

Objective: (0.3) Know Geometry Formulas

172) Find the area A and circumference C of a circle of diameter 3 cm. Use 3.14 for π. Round the result to the nearest tenth.

A) $A = 28.3\ \text{cm}^2$; $C = 4.7$ cm B) $A = 9.4\ \text{cm}^2$; $C = 9.4$ cm

C) $A = 7.1\ \text{cm}^2$; $C = 9.4$ cm D) $A = 18.8\ \text{cm}^2$; $C = 4.7$ cm

Objective: (0.3) Know Geometry Formulas

173) Find the volume V of a rectangular box with length 5 in., width 6 in., and height 9 in..

A) $V = 270\ \text{in.}^3$ B) $V = 486\ \text{in.}^3$ C) $V = 180\ \text{in.}^3$ D) $V = 225\ \text{in.}^3$

Objective: (0.3) Know Geometry Formulas

174) Find the surface area S of a rectangular box with length 2 ft, width 5 ft, and height 2 ft.

A) $38\ \text{ft}^2$ B) $48\ \text{ft}^2$ C) $60\ \text{ft}^2$ D) $24\ \text{ft}^2$

Objective: (0.3) Know Geometry Formulas

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175) Find the volume V and surface area S of a sphere of radius 11 centimeters. Express the answer in terms of π.

A) $V = \frac{5324}{3}\pi$ cm^3; $S = 484\pi$ cm^2

B) $V = 5{,}324\pi$ cm^3; $S = \frac{121}{4}\pi$ cm^2

C) $V = 1{,}331\pi$ cm^3; $S = 121\pi$ cm^2

D) $V = \frac{1331}{3}\pi$ cm^3; $S = \frac{5324}{3}\pi$ cm^2

Objective: (0.3) Know Geometry Formulas

176) Find the volume V of a sphere of radius 4.5 cm. Use 3.14 for π. If necessary, round the result to the nearest tenth.

A) $V = 84.8$ cm^3 B) $V = 214.6$ cm^3 C) $V = 381.5$ cm^3 D) $V = 3{,}052.1$ cm^3

Objective: (0.3) Know Geometry Formulas

177) Find the volume V of a right circular cylinder with radius 12 cm and height 16 cm. Express the answer in terms of π.

A) $V = 96\pi$ cm^3 B) $V = 2{,}304\pi$ cm^3 C) $V = 576\pi$ cm^3 D) $V = 192\pi$ cm^3

Objective: (0.3) Know Geometry Formulas

178) Find the surface area S of a right circular cylinder with radius 7 cm, and height 8 cm. Use 3.14 for π. Round your answer to one decimal place.

A) 1,230.9 cm^2 B) 329.7 cm^2 C) 483.6 cm^2 D) 659.4 cm^2

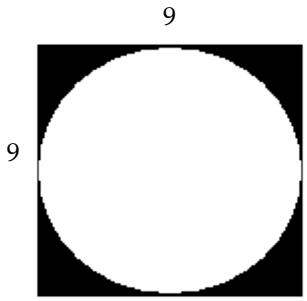
Objective: (0.3) Know Geometry Formulas

179) Find the volume V of a sphere of diameter 9 m. Use 3.14 for π. If necessary, round the result to the nearest tenth.

A) $V = 3{,}052.1$ m^3 B) $V = 381.5$ m^3 C) $V = 84.8$ m^3 D) $V = 214.6$ m^3

Objective: (0.3) Know Geometry Formulas

180) Find the area of the shaded region. Express the answer in terms of π.



A) $\frac{81}{4}\pi + 81$ square units

B) $324 - 81\pi$ square units

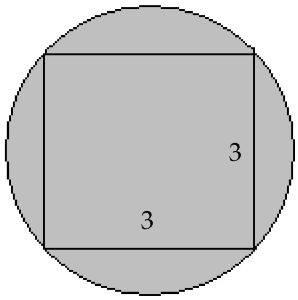
C) $81 - \frac{81}{4}\pi$ square units

D) $81 - \frac{81}{2}\pi$ square units

Objective: (0.3) Know Geometry Formulas

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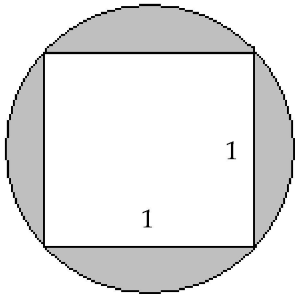
181) Find the area of the shaded region. Express the answer in terms of π.



A) 3π square units B) $\frac{9}{2}$ square units C) $\frac{9}{2}\pi$ square units D) $\frac{9}{4}\pi$ square units

Objective: (0.3) Know Geometry Formulas

182) Find the area of the shaded region. Express the answer in terms of π.



A) 1 square units B) $\frac{1}{2}\pi - 1$ square units

C) $1\pi - 1$ square units D) $\frac{1}{4}\pi - 1$ square units

Objective: (0.3) Know Geometry Formulas

183) A bicycle wheel makes 3 revolutions. Determine how far the bicycle travels in inches if the diameter of the wheel is 14 in. Use $\pi \approx 3.14$. Round to the nearest tenth.

A) 44 in. B) 42 in. C) 263.8 in. D) 131.9 in.

Objective: (0.3) Know Geometry Formulas

184) A rectangular patio has dimensions 10 feet by 15 feet. The patio is surrounded by a border with a uniform width of 3 feet. Find the area of the border.

A) 186 ft^2 B) 84 ft^2 C) 114 ft^2 D) 162 ft^2

Objective: (0.3) Know Geometry Formulas

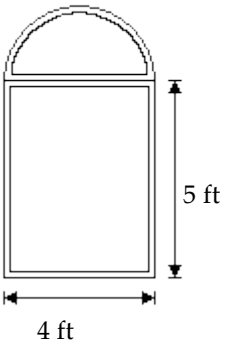
185) A circular swimming pool, 20 feet in diameter, is enclosed by a circular deck that is 5 feet wide. What is the area of the deck? Use $\pi = 3.1416$.

A) 942.5 ft^2 B) 314.2 ft^2 C) 675.4 ft^2 D) 392.7 ft^2

Objective: (0.3) Know Geometry Formulas

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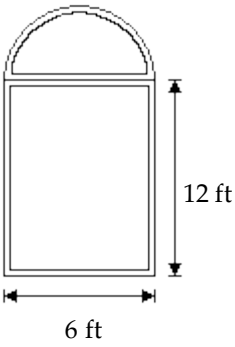
186) Find the perimeter. Approximate the result to the nearest tenth using 3.14 for π.



A) 24.3 ft B) 30.6 ft C) 20.3 ft D) 26.6 ft

Objective: (0.3) Know Geometry Formulas

187) Find the area of the window. Approximate the result to the nearest tenth using 3.14 for π.

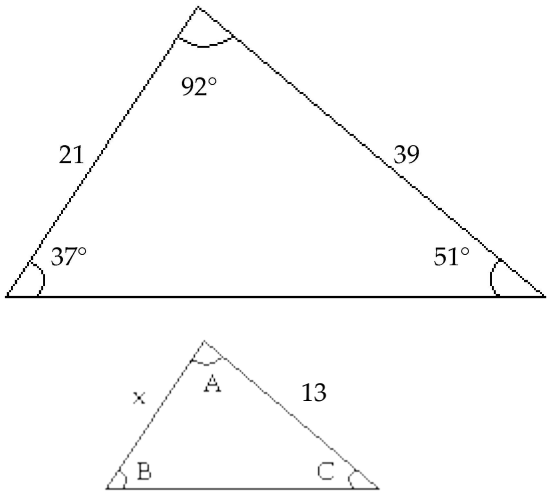


A) 86.1 ft^2 B) 128.5 ft^2 C) 76.7 ft^2 D) 185 ft^2

Objective: (0.3) Know Geometry Formulas

The triangles are similar. Find the missing length x and the missing angles A, B, C.

188)

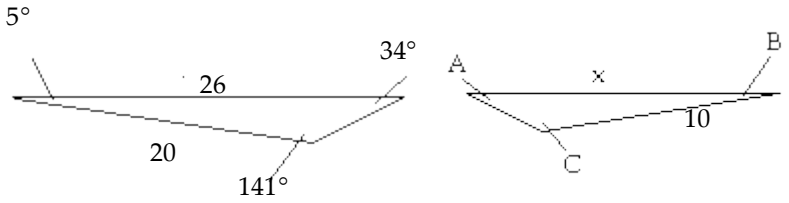


A) x = 21 units; A = 92°; B = 37°; C = 51° B) x = 21 units; A = 37°; B = 92°; C = 51°
C) x = 7 units; A = 51°; B = 37°; C = 92° D) x = 7 units; A = 92°; B = 37°; C = 51°

Objective: (0.3) Understand Congruent Triangles and Similar Triangles

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189)



A) x = 26; A = 5; B = 34; C = 141
B) x = 13; A = 141; B = 5; C = 34
C) x = 26; A = 34; B = 5; C = 141
D) x = 13; A = 34; B = 5; C = 141

Objective: (0.3) Understand Congruent Triangles and Similar Triangles

Solve. If necessary, round to the nearest tenth.

190) A flagpole casts a shadow of 27 feet. Nearby, a 5–foot tree casts a shadow of 2 feet. What is the height of the flagpole?

A) 10.8 ft
B) 0.4 ft
C) 270 ft
D) 67.5 ft

Objective: (0.3) Understand Congruent Triangles and Similar Triangles

191) If a flagpole 15 feet tall casts a shadow that is 20 feet long, find the length of the shadow cast by an antenna which is 48 feet tall.

A) 6.3 ft
B) 36 ft
C) 53 ft
D) 64 ft

Objective: (0.3) Understand Congruent Triangles and Similar Triangles

192) The zoo has hired a landscape architect to design the triangular lobby of the children's petting zoo. In his scale drawing, the longest side of the lobby is 10 cm. The shortest side of the lobby is 4 cm. The longest side of the actual lobby will be 38 m. How long will the shortest side of the actual lobby be?

A) 15.2 m
B) 95 m
C) 1 m
D) 0.2 m

Objective: (0.3) Understand Congruent Triangles and Similar Triangles

193) If a tree 17.5 feet tall casts a shadow that is 7 feet long, find the height of a tree casting a shadow that is 15 feet long.

A) 25.5 ft
B) 6 ft
C) 8.2 ft
D) 37.5 ft

Objective: (0.3) Understand Congruent Triangles and Similar Triangles

Tell whether the expression is a monomial. If it is, name the variable(s) and coefficient, and give the degree of the monomial.

194) $-20x$

A) Monomial,; variable x; coefficient –20; degree 0
B) Monomial; variable x; coefficient –20; degree 1
C) Monomial, variable x; coefficient 1; degree –20
D) Not a monomial

Objective: (0.4) Recognize Monomials

195) $8x^7$

A) Monomial; variable x; coefficient 7; degree 0
B) Monomial; variable x; coefficient 7; degree 8
C) Monomial; variable x; coefficient 8; degree 7
D) Not a monomial

Objective: (0.4) Recognize Monomials

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196) $\frac{4}{x}$

A) Monomial; variable x; coefficient 4; degree –1
B) Monomial; variable x; coefficient 4; degree 1
C) Monomial; variable x; coefficient 4; degree 0
D) Not a monomial

Objective: (0.4) Recognize Monomials

197) $-18x^{-2}$

A) Monomial; variable x; coefficient 2; degree –18
B) Monomial; variable x; coefficient –18; degree 2
C) Monomial; variable x; coefficient –18; degree –2
D) Not a monomial

Objective: (0.4) Recognize Monomials

198) $-2xy^3$

A) Monomial; variables x, y; coefficient –2; degree 4
B) Monomial; variables x, y; coefficient –2; degree 1
C) Monomial; variables x, y; coefficient –2; degree 3
D) Not a monomial

Objective: (0.4) Recognize Monomials

199) $-2x^2y^4$

A) Monomial; variables x, y; coefficient –2; degree 6
B) Monomial; variables x, y; coefficient –2; degree 4
C) Monomial; variables x, y; coefficient –2; degree 2
D) Not a monomial

Objective: (0.4) Recognize Monomials

200) $\frac{13x}{y}$

A) Monomial; variables x, y; coefficient 13; degree 2
B) Monomial; variables x, y; coefficient 13; degree 1
C) Monomial; variables x, y; coefficient 13; degree –2
D) Not a monomial

Objective: (0.4) Recognize Monomials

201) $-\frac{-5x^{12}}{y^4}$

A) Monomial; variables x, y; coefficient –5; degree 4
B) Monomial; variables x, y; coefficient –5; degree 8
C) Monomial; variables x, y; coefficient –5; degree 12
D) Not a monomial

Objective: (0.4) Recognize Monomials

202) $3x^5 - 4$

A) Monomial; variable x; coefficient 4 ; degree 5
B) Monomial; variable x; coefficient 3; degree 1
C) Monomial; variable x; coefficient 3; degree 5
D) Not a monomial

Objective: (0.4) Recognize Monomials

Tell whether the expression is a polynomial. If it is, give its degree.

203) $7x^2 - 5$

A) Polynomial; degree 5
B) Polynomial; degree 7
C) Polynomial; degree 2
D) Not a polynomial

Objective: (0.4) Recognize Polynomials

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204) $1 - 6x$

A) Polynomial; degree 6
B) Polynomial; degree 1
C) Polynomial; degree -6
D) Not a polynomial

Objective: (0.4) Recognize Polynomials

205) 13

A) Polynomial, degree 0
B) Polynomial, degree 13
C) Polynomial, degree 1
D) Not a polynomial

Objective: (0.4) Recognize Polynomials

206) 9π

A) polynomial, degree 9
B) polynomial, degree 1
C) polynomial, degree 0
D) not a polynomial

Objective: (0.4) Recognize Polynomials

207) $6x^4 - \frac{2}{x}$

A) Polynomial; degree 1
B) Polynomial; degree 4
C) Polynomial; degree -1
D) Not a polynomial

Objective: (0.4) Recognize Polynomials

208) $\frac{1}{x} + 1$

A) Polynomial, degree 0
B) Polynomial, degree 1
C) Polynomial, degree -1
D) Not a Polynomial

Objective: (0.4) Recognize Polynomials

209) $-9y^6 - \sqrt{3}$

A) Polynomial; degree 3
B) Polynomial; degree 6
C) Polynomial; degree -9
D) Not a polynomial

Objective: (0.4) Recognize Polynomials

210) $-6z^3 + z$

A) Polynomial; degree 3
B) Polynomial; degree 1
C) Polynomial; degree 4
D) Not a polynomial

Objective: (0.4) Recognize Polynomials

211) $\frac{-15x^{11} + 40x^7}{-5x^3}$

A) Polynomial; degree 0
B) Polynomial; degree 11
C) Polynomial; degree 7
D) Not a polynomial

Objective: (0.4) Recognize Polynomials

Add or subtract as indicated. Express the answer as a single polynomial in standard form.

212) $(2x^2 + 8x - 4) + (16x + 4)$

A) $2x^2 + 24x$
B) $26x^3$
C) $2x^2 + 24x - 8$
D) $2x^2 + 8x + 8$

Objective: (0.4) Add and Subtract Polynomials

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213) $(2x^2 + 2x + 6) + (7x^2 - 9x + 7)$

A) $9x^2 + 7x + 13$ B) $9x^2 - 7x - 13$ C) $9x^2 - 7x + 13$ D) $13x^2 - 7x + 9$

Objective: (0.4) Add and Subtract Polynomials

214) $(5x^2 + 2x + 6) - (9x^2 - 13x + 13)$

A) $-4x^2 + 11x + 19$ B) $-4x^2 + 15x - 7$ C) $-4x^2 + 15x + 7$ D) $-4x^2 + 15x + 19$

Objective: (0.4) Add and Subtract Polynomials

215) $(9x^5 - 4x^3) + (7x^5 - 7x^3)$

A) $16x^5 - 11x^3$ B) $5x^{16}$ C) $16x^{10} - 11x^6$ D) $5x^8$

Objective: (0.4) Add and Subtract Polynomials

216) $(14x^5 - 8x^3) - (-18x^5 - 8x^3)$

A) $-4x^5 - 16x^3$ B) $32x^8$ C) $32x^5 + 0x^3$ D) $32x^5 - 16x^3$

Objective: (0.4) Add and Subtract Polynomials

217) $(2x^5 + 4x^2) + (3x^5 + 9x^2 + 8)$

A) $5x^5 + 13x^2 + 8$ B) $33x^8$ C) $8x + 13x^5 + 15x^2$ D) $10x^5 + 11x^2 + 8x$

Objective: (0.4) Add and Subtract Polynomials

218) $(-10x^2 + 7) - (-x^3 + 5x^2 + 6)$

A) $x^3 - 5x^2 + 13$ B) $x^3 - 15x^2 + 1$ C) $-9x^3 + 5x^2 + 1$ D) $-9x^3 + 12x^2 - 6$

Objective: (0.4) Add and Subtract Polynomials

219) $(6x^7 - 9x^4 - 6) - (4x^7 + 15x^4 + 7)$

A) $-35x^{11}$ B) $2x^7 - 24x^4 + 1$ C) $2x^7 - 24x^4 - 13$ D) $2x^7 - 5x^4 + 1$

Objective: (0.4) Add and Subtract Polynomials

220) $(2x^5 + 13x^3 + 3) - (-5x^3 + 8x^5 - 16)$

A) $-6x^5 + 18x^3 - 13$ B) $31x^8$ C) $-6x^5 + 18x^3 + 19$ D) $-6x^5 + 21x^3 - 13$

Objective: (0.4) Add and Subtract Polynomials

221) $(7x^6 - 7x^4 - 3x) + (5x^6 + 5x^4 + 9x)$

A) $2x^6 + 12x^4 + 2x$ B) $12x^6 - 2x^4 + 6x$ C) $16x^{11}$ D) $12x - 2x^6 + 6x^4$

Objective: (0.4) Add and Subtract Polynomials

222) $-1(x^2 + 4x + 1) + (-2x^2 - x - 4)$

A) $-3x^2 - 4x - 5$ B) $-3x^2 - 5x - 3$ C) $1x^2 - 5x - 5$ D) $-3x^2 - 5x - 5$

Objective: (0.4) Add and Subtract Polynomials

223) $5(-3x^3 + x^2 - 1) - 2(6x^3 + 4x + 2)$

A) $-27x^3 + 5x^2 - 8x + 9$
B) $-27x^3 + 5x^2 + 8x - 9$
C) $-27x^3 + x^2 - 8x - 9$
D) $-27x^3 + 5x^2 - 8x - 9$

Objective: (0.4) Add and Subtract Polynomials

224) $(x^2 + 1) - (7x^2 + 8) + (x^2 + x - 8)$

A) $-5x^2 + 9x - 7$
B) $-6x^2 + x - 15$
C) $-7x^2 + x - 15$
D) $-5x^2 + x - 15$

Objective: (0.4) Add and Subtract Polynomials

225) $2(1 - y^3) - 5(1 + y + y^2 + y^3)$

A) $-7y^3 - 5y^2 - 5y - 3$
B) $-7y^3 - 5 - ay^2 - 5y - 3$
C) $-7y^3 + 5y^2 - 5y + 3$
D) $7y^3 - 5y^2 - 5y - 3$

Objective: (0.4) Add and Subtract Polynomials

Perform the indicated operations. Express the answer as a single polynomial in standard form.

226) $2x(-7x - 3)$

A) $-14x^2 - 6x$
B) $-7x^2 - 6x$
C) $-20x^2$
D) $-14x^2 - 3x$

Objective: (0.4) Multiply Polynomials

227) $-9x^7(-9x + 7)$

A) $81x^8 + 7$
B) $81x^8 - 63x^7$
C) $81x - 63$
D) $18x^7$

Objective: (0.4) Multiply Polynomials

228) $4x^5(-6x^3 - 10)$

A) $-24x^8 - 40x^5$
B) $-64x^5$
C) $-24x^3 - 40$
D) $-24x^8 - 10$

Objective: (0.4) Multiply Polynomials

229) $-5x^5(-2x^6 - 4x^2 + 12)$

A) $10x^{11} - 4x^2 + 12$
B) $10x^{11} + 20x^7$
C) $10x^6 + 20x^2 - 60$
D) $10x^{11} + 20x^7 - 60x^5$

Objective: (0.4) Multiply Polynomials

230) $(x - 11)(x^2 + 5x - 7)$

A) $x^3 + 16x^2 + 48x - 77$
B) $x^3 - 6x^2 - 62x + 77$
C) $x^3 - 6x^2 - 48x - 77$
D) $x^3 + 16x^2 + 62x + 77$

Objective: (0.4) Multiply Polynomials

231) $(5y + 11)(2y^2 - 2y - 9)$

A) $10y^3 - 10y^2 - 45y + 11$
B) $10y^3 + 32y^2 + 67y + 99$
C) $10y^3 + 12y^2 - 67y - 99$
D) $32y^2 - 32y - 144$

Objective: (0.4) Multiply Polynomials

Multiply the polynomials using the FOIL method. Express the answer as a single polynomial in standard form.

232) $(x - 5)(x + 2)$

A) $x^2 - 3x - 3$
B) $x^2 - 10x - 3$
C) $x^2 - 4x - 10$
D) $x^2 - 3x - 10$

Objective: (0.4) Multiply Polynomials

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233) $(-4x + 10)(x - 7)$

A) $-4x^2 + 36x - 70$ B) $-4x^2 - 70x + 38$ C) $-4x^2 + 38x + 38$ D) $-4x^2 + 38x - 70$

Objective: (0.4) Multiply Polynomials

234) $(4x - 9)(3x - 8)$

A) $12x^2 - 59x + 72$ B) $12x^2 - 59x - 59$ C) $7x^2 - 59x + 72$ D) $7x^2 - 59x - 59$

Objective: (0.4) Multiply Polynomials

235) $(x - 2y)(x - 12y)$

A) $x^2 - 14xy - 14y^2$ B) $x - 14xy + 24y$ C) $x^2 - 17xy + 24y^2$ D) $x^2 - 14xy + 24y^2$

Objective: (0.4) Multiply Polynomials

236) $(x - 6y)(2x - 12y)$

A) $x^2 - 24xy - 24y^2$ B) $x^2 - 24xy + 72y^2$ C) $2x^2 - 24xy + 72y^2$ D) $2x^2 - 24xy - 24y^2$

Objective: (0.4) Multiply Polynomials

237) $(-3x - 8y)(3x - 2y)$

A) $-9x^2 - 18xy + 16y^2$ B) $-9x^2 + 6xy + 16y^2$ C) $-9x^2 - 24xy + 16y^2$ D) $-9x^2 - 18xy - 18y^2$

Objective: (0.4) Multiply Polynomials

Multiply the polynomials. Express the answer as a single polynomial in standard form.

238) $(x + 9)(x - 9)$

A) $x^2 + 18x - 81$ B) $x^2 - 81$ C) $x^2 - 18$ D) $x^2 - 18x - 81$

Objective: (0.4) Know Formulas for Special Products

239) $(12x + 7)(12x - 7)$

A) $144x^2 - 49$ B) $144x^2 - 168x - 49$ C) $x^2 - 49$ D) $144x^2 + 168x - 49$

Objective: (0.4) Know Formulas for Special Products

240) $(x + 12)^2$

A) $x^2 + 144$ B) $x^2 + 24x + 144$ C) $x + 144$ D) $144x^2 + 24x + 144$

Objective: (0.4) Know Formulas for Special Products

241) $(x - 11)^2$

A) $x^2 + 121$ B) $121x^2 - 22x + 121$ C) $x^2 - 22x + 121$ D) $x + 121$

Objective: (0.4) Know Formulas for Special Products

242) $(5x + 3)^2$

A) $5x^2 + 9$ B) $5x^2 + 30x + 9$ C) $25x^2 + 30x + 9$ D) $25x^2 + 9$

Objective: (0.4) Know Formulas for Special Products

243) $(x + 5y)(x - 5y)$

A) $x^2 + 10xy - 25y^2$ B) $x^2 - 10xy - 25y^2$ C) $x^2 - 10y^2$ D) $x^2 - 25y^2$

Objective: (0.4) Know Formulas for Special Products

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244) $(6y + x)(6y - x)$

A) $36y^2 - 12xy - x^2$ B) $36y^2 - x^2$ C) $12y^2 - x^2$ D) $36y^2 + 12xy - x^2$

Objective: (0.4) Know Formulas for Special Products

245) $(5x - 3)^2$

A) $5x^2 + 9$ B) $5x^2 - 30x + 9$ C) $25x^2 + 9$ D) $25x^2 - 30x + 9$

Objective: (0.4) Know Formulas for Special Products

246) $(r - w)^2$

A) $r^2 - 2rw - w^2$ B) $r^2 + 2rw + w^2$ C) $r^2 - rw + w^2$ D) $r^2 - 2rw + w^2$

Objective: (0.4) Know Formulas for Special Products

247) $(3x + 5y)^2$

A) $3x^2 + 30xy + 25y^2$ B) $9x^2 + 30xy + 25y^2$ C) $9x^2 + 25y^2$ D) $3x^2 + 25y^2$

Objective: (0.4) Know Formulas for Special Products

248) $(2x - 5y)^2$

A) $2x^2 + 25y^2$ B) $4x^2 + 25y^2$ C) $2x^2 - 20xy + 25y^2$ D) $4x^2 - 20xy + 25y^2$

Objective: (0.4) Know Formulas for Special Products

249) $(x + 3)^3$

A) $x^3 + 9x^2 + 3x + 27$ B) $x^3 + 3x^2 + 3x + 27$ C) $x^3 + 9x^2 + 9x + 27$ D) $x^3 + 9x^2 + 27x + 27$

Objective: (0.4) Know Formulas for Special Products

250) $(2x + 5)^3$

A) $4x^2 + 20x + 25$ B) $8x^3 + 60x^2 + 150x + 125$

C) $8x^3 + 60x^2 + 60x + 125$ D) $4x^6 + 10x^3 + 15{,}625$

Objective: (0.4) Know Formulas for Special Products

Find the quotient and the remainder.

251) $12x^6 - 20x^3$ divided by $4x$

A) $3x^7 - 5x^4$; remainder 0 B) $3x^5 - 5x^2$; remainder 0

C) $12x^5 - 20x^2$; remainder 0 D) $3x^6 - 5x^3$; remainder 0

Objective: (0.4) Divide Polynomials Using Long Division

252) $8x^2 + 24x - 11$ divided by $4x$

A) $2x^2 + 6x - \frac{11}{4}$; remainder 0 B) $8x + 24$; remainder -11

C) $2x - 5$; remainder 0 D) $2x + 6$; remainder -11

Objective: (0.4) Divide Polynomials Using Long Division

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253) $x^2 + 10x + 21$ divided by $x + 7$

A) $x - 14$; remainder 0
B) $x^2 + 3$; remainder 0
C) $x + 3$; remainder 0
D) $x^3 - 14$; remainder 0

Objective: (0.4) Divide Polynomials Using Long Division

254) $7x^2 + 39x - 18$ divided by $x + 6$

A) $7x + 3$; remainder 0
B) $7x - 3$; remainder 3
C) $7x - 3$; remainder 0
D) $x - 3$; remainder 0

Objective: (0.4) Divide Polynomials Using Long Division

255) $x^2 + 4x - 14$ divided by $x + 7$

A) $x - 3$; remainder 0
B) $x + 3$; remainder 7
C) $x - 3$; remainder 7
D) $x - 7$; remainder 3

Objective: (0.4) Divide Polynomials Using Long Division

256) $x^2 + 9x + 16$ divided by $x + 6$

A) $x + 3$; remainder 0
B) $x + 3$; remainder -2
C) $x + 4$; remainder 0
D) $x + 3$; remainder 2

Objective: (0.4) Divide Polynomials Using Long Division

257) $2x^3 - 4x^2 - 9x + 14$ divided by $x + 2$

A) $x^2 + 9x + 10$; remainder 0
B) $2x^2 - 8x + 7$; remainder 0
C) $2x^2 + 8x + 7$; remainder 0
D) $x^2 + 8x + 2$; remainder 0

Objective: (0.4) Divide Polynomials Using Long Division

258) $6x^3 - 2x^2 - 17x + 18$ divided by $-3x + 4$

A) $-2x^2 - 2x + 3$; remainder 9
B) $x^2 + 3$; remainder -2
C) $-2x^2 - 2x + 3$; remainder 6
D) $-2x^2 - 2x + 3$; remainder 0

Objective: (0.4) Divide Polynomials Using Long Division

259) $5x^3 - 7x^2 + 7x - 8$ divided by $5x - 2$

A) $x^2 - x + 1$; remainder 6
B) $x^2 - x + 1$; remainder -6
C) $x^2 + x - 1$; remainder -6
D) $x^2 - x + 1$; remainder 10

Objective: (0.4) Divide Polynomials Using Long Division

260) $x^4 + 1{,}296$ divided by $x - 6$

A) $x^3 + 6x^2 + 36x + 216$; remainder 0
B) $x^3 - 6x^2 + 36x - 216$; remainder 2,592
C) $x^3 + 6x^2 + 36x + 216$; remainder 2,592
D) $x^3 + 6x^2 + 36x + 216$; remainder 1,296

Objective: (0.4) Divide Polynomials Using Long Division

261) $20x^3 + 41x^2 + 8x - 11$ divided by $4x + 5$

A) $5x^2 + 4x - 3$; remainder 7
B) $5x^2 + 4x - 3$; remainder 4
C) $x^2 - 3$; remainder 4
D) $5x^2 + 4x - 3$; remainder 0

Objective: (0.4) Divide Polynomials Using Long Division

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262) $4x^3 - 2x^2 + 4x - 7$ divided by $-2x + 3$

A) $-2x^2 - 2x - 5$; remainder 8
B) $x^2 - 5$; remainder -2
C) $-2x^2 - 2x - 5$; remainder 11
D) $-2x^2 - 2x - 5$; remainder 0

Objective: (0.4) Divide Polynomials Using Long Division

263) $x^4 + 7x^2 + 10$ divided by $x^2 + 1$

A) $x^2 + 6x + 2$; remainder 4
B) $x^2 + 6$; remainder 4
C) $x^2 + 6x + \frac{3}{2}$; remainder 0
D) $x^2 + 6$; remainder 0

Objective: (0.4) Divide Polynomials Using Long Division

264) $x^4 + 1{,}296$ divided by $x - 6$

A) $x^3 - 6x^2 + 36x - 216$; remainder 2,592
B) $x^3 + 6x^2 + 36x + 216$; remainder 0
C) $x^3 + 6x^2 + 36x + 216$; remainder 1,296
D) $x^3 + 6x^2 + 36x + 216$; remainder 2,592

Objective: (0.4) Divide Polynomials Using Long Division

265) $x^2 - 169a^2$ divided by $x - 13a$

A) $x^2 + 26xa$
B) $x - 13a$
C) $x + 13a$
D) $x^2 - 26xa$

Objective: (0.4) Divide Polynomials Using Long Division

Multiply the polynomials using the FOIL method. Express the answer as a single polynomial in standard form.

266) $(x - 9y)(x + 3y)$

A) $x^2 - 9xy - 27y^2$
B) $x - 6xy - 27y$
C) $x^2 - 6xy - 27y^2$
D) $x^2 - 6xy - 6y^2$

Objective: (0.4) Work with Polynomials in Two Variables

267) $(4x + 3y)(5x - 2y)$

A) $20x^2 + 15xy - 6y^2$
B) $20x^2 - 8xy - 6y^2$
C) $20x^2 + 7xy + 7y^2$
D) $20x^2 + 7xy - 6y^2$

Objective: (0.4) Work with Polynomials in Two Variables

Multiply the polynomials using the special product formulas. Express the answer as a single polynomial in standard form.

268) $(x + 10y)(x - 10y)$

A) $x^2 + 20xy - 100y^2$
B) $x^2 - 20y^2$
C) $x^2 - 20xy - 100y^2$
D) $x^2 - 100y^2$

Objective: (0.4) Work with Polynomials in Two Variables

269) $(6x + y)(6x - y)$

A) $36x^2 + 12xy - y^2$
B) $12x^2 - y^2$
C) $36x^2 - 12xy - y^2$
D) $36x^2 - y^2$

Objective: (0.4) Work with Polynomials in Two Variables

270) $(3x + 11y)(3x - 11y)$

A) $6x^2 - 22y^2$
B) $9x^2 - 121y^2$
C) $9x^2 - 66xy - 121y^2$
D) $9x^2 + 66xy - 121y^2$

Objective: (0.4) Work with Polynomials in Two Variables

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271) $(x - y)^2$

A) $x^2 - 2xy + y^2$ B) $x^2 - y^2$ C) $x^2 - xy + y^2$ D) $x^2 - 2x^2y^2 + y^2$

Objective: (0.4) Work with Polynomials in Two Variables

272) $(x - 6y)^2$

A) $x^2 - 6xy + 36y^2$ B) $x^2 - 12xy + 36y^2$ C) $x^2 - y^2$ D) $x^2 + 12xy + 36y^2$

Objective: (0.4) Work with Polynomials in Two Variables

273) $(9x - y)^2$

A) $81x^2 + y^2$ B) $81x^2 - 18xy - 2y^2$ C) $81x^2 - 9xy + y^2$ D) $81x^2 - 18xy + y^2$

Objective: (0.4) Work with Polynomials in Two Variables

274) $(3x + 4y)^2$

A) $9x^2 + 24xy + 16y^2$ B) $3x^2 + 16y^2$ C) $9x^2 + 16y^2$ D) $3x^2 + 24xy + 16y^2$

Objective: (0.4) Work with Polynomials in Two Variables

275) $(9x - 11y)^2$

A) $9x^2 + 121y^2$ B) $81x^2 + 121y^2$

C) $9x^2 - 198xy + 121y^2$ D) $81x^2 - 198xy + 121y^2$

Objective: (0.4) Work with Polynomials in Two Variables

Factor the polynomial by removing the common monomial factor.

276) $7x - 7$

A) $7(x - 1)$ B) $x(x - 7)$ C) $x(x + 7)$ D) $7(x + 1)$

Objective: (0.5) Factor the Difference of Two Squares and the Sum and Difference of Two Cubes

277) $8x^2 - 40x$

A) $8x(x - 5)$ B) $8x^2(x - 5)$ C) $8(x^2 - 5x)$ D) $8x(x + 5)$

Objective: (0.5) Factor the Difference of Two Squares and the Sum and Difference of Two Cubes

Factor the difference of two squares.

278) $x^2 - 9$

A) $(x - 3)(x - 3)$ B) $(x^2 + 3)(x^2 - 3)$ C) $(x + 3)(x - 3)$ D) $(x + 9)(x - 9)$

Objective: (0.5) Factor the Difference of Two Squares and the Sum and Difference of Two Cubes

279) $81x^2 - 1$

A) $(9x - 1)^2$ B) $(9x - 1)(9x + 1)$ C) $(9x + 1)^2$ D) prime

Objective: (0.5) Factor the Difference of Two Squares and the Sum and Difference of Two Cubes

280) $9 - x^2$

A) prime B) $(3 - x)(3 + x)$ C) $(3 + x)^2$ D) $(3 - x)^2$

Objective: (0.5) Factor the Difference of Two Squares and the Sum and Difference of Two Cubes

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281) $9x^2 - 64$

A) $(3x - 8)^2$ B) $(3x + 8)^2$ C) $(3x + 8)(3x - 8)$ D) $(9x + 1)(x - 64)$

Objective: (0.5) Factor the Difference of Two Squares and the Sum and Difference of Two Cubes

Factor the sum or difference of two cubes.

282) $x^3 - 8$

A) $(x + 8)(x^2 - 1)$ B) $(x + 2)(x^2 - 2x + 4)$

C) $(x - 2)(x^2 + 4)$ D) $(x - 2)(x^2 + 2x + 4)$

Objective: (0.5) Factor the Difference of Two Squares and the Sum and Difference of Two Cubes

283) $x^3 + 125$

A) $(x - 5)(x^2 + 5x + 25)$ B) $(x - 125)(x^2 - 1)$ C) $(x + 5)(x^2 + 25)$ D) $(x + 5)(x^2 - 5x + 25)$

Objective: (0.5) Factor the Difference of Two Squares and the Sum and Difference of Two Cubes

284) $512y^3 - 1$

A) $(8y + 1)(64y^2 - 8y + 1)$ B) $(512y - 1)(y^2 + 8y + 1)$

C) $(8y - 1)(64y^2 + 8y + 1)$ D) $(8y - 1)(64y^2 + 1)$

Objective: (0.5) Factor the Difference of Two Squares and the Sum and Difference of Two Cubes

285) $64x^3 + 1$

A) $(4x + 1)(16x^2 + 1)$ B) $(4x + 1)(16x^2 - 4x - 1)$

C) $(4x + 1)(16x^2 - 4x + 1)$ D) $(4x + 1)(16x^2 + 4x + 1)$

Objective: (0.5) Factor the Difference of Two Squares and the Sum and Difference of Two Cubes

286) $729 - x^3$

A) $(9 - x)(81 + 9x + x^2)$ B) $(9 + x)(81 - x^2)$ C) $(9 + x)(81 - 9x + x^2)$ D) $(9 - x)(81 + x^2)$

Objective: (0.5) Factor the Difference of Two Squares and the Sum and Difference of Two Cubes

287) $729x^3 - 512$

A) $(9x - 8)(81x^2 + 64)$ B) $(9x - 8)(81x^2 + 72x + 64)$

C) $(729x - 8)(x^2 + 72x + 64)$ D) $(9x + 8)(81x^2 - 72x + 64)$

Objective: (0.5) Factor the Difference of Two Squares and the Sum and Difference of Two Cubes

288) $729x^3 + 512$

A) $(9x - 8)(81x^2 + 72x + 64)$ B) $(9x + 8)(81x^2 - 72x + 64)$

C) $(729x - 8)(x^2 + 72x + 64)$ D) $(9x + 8)(81x^2 + 72x + 64)$

Objective: (0.5) Factor the Difference of Two Squares and the Sum and Difference of Two Cubes

289) $8 - 27x^3$

A) $(2 - 3x)(4 + 6x + 9x^2)$ B) $(2 - 3x)(4 + 9x^2)$

C) $(2 + 3x^2)(4 - 6x + 9x^2)$ D) $(8 - 3x)(1 + 6x + 9x^2)$

Objective: (0.5) Factor the Difference of Two Squares and the Sum and Difference of Two Cubes

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Factor completely. If the polynomial cannot be factored, say it is prime.

290) $2x^2 - 50$

A) $2(x + 5)(x - 5)$ B) prime C) $2(x + 5)^2$ D) $2(x - 5)^2$

Objective: (0.5) Factor the Difference of Two Squares and the Sum and Difference of Two Cubes

291) $x^4 - 25$

A) $(x^2 + 5)(x^2 - 5)$ B) prime C) $(x^2 + 5)^2$ D) $(x^2 - 5)^2$

Objective: (0.5) Factor the Difference of Two Squares and the Sum and Difference of Two Cubes

292) $x^4 - 256$

A) prime B) $(x^2 + 16)^2$

C) $(x^2 + 16)(x + 4)(x - 4)$ D) $(x^2 - 16)^2$

Objective: (0.5) Factor the Difference of Two Squares and the Sum and Difference of Two Cubes

293) $(x + 1)^2 - 49$

A) $(x + 8)(x - 6)$ B) $x^2 + 2x - 48$ C) $(x + 50)(x - 48)$ D) $(x + 6)(x - 8)$

Objective: (0.5) Factor the Difference of Two Squares and the Sum and Difference of Two Cubes

294) $(x - 2)^2 - 49$

A) $(x + 5)(x - 9)$ B) $(x - 9)^2$ C) $(x + 47)(x - 51)$ D) $(x - 5)(x + 9)$

Objective: (0.5) Factor the Difference of Two Squares and the Sum and Difference of Two Cubes

295) $x^9 + 1$

A) $(x - 1)(x + 1)(x^6 - x^3 + 1)$ B) $(x^3 + 1)(x^6 - x^3 + 1)$

C) $(x - 1)(x^2 + x + 1)(x^6 + x^3 + 1)$ D) $(x + 1)(x^2 - x + 1)(x^6 - x^3 + 1)$

Objective: (0.5) Factor the Difference of Two Squares and the Sum and Difference of Two Cubes

296) $343x^4 - x$

A) $x(7x - 1)(49x^2 + 7x + 1)$ B) $x(343x - 1)(x^2 + 7x + 1)$

C) $x(7x - 1)(49x^2 + 1)$ D) $x(7x + 1)(49x^2 - 7x + 1)$

Objective: (0.5) Factor the Difference of Two Squares and the Sum and Difference of Two Cubes

297) $(3x + 3)^3 + 512$

A) $(3x - 5)(9x^2 + 42x + 97)$ B) $(3x + 11)(9x^2 + 42x + 97)$

C) $(3x + 11)(9x^2 + 42x + 49)$ D) $(3x + 11)(9x^2 - 6x + 49)$

Objective: (0.5) Factor the Difference of Two Squares and the Sum and Difference of Two Cubes

298) $(15 - x)^3 - x^3$

A) $(15 - 2x)(x^2 - 15x + 225)$ B) $(15 - 2x)(3x^2 - 15x + 225)$

C) $(15 + 2x)(x^2 - 15x + 225)$ D) $(15 - x)(x^2 - 15x + 225)$

Objective: (0.5) Factor the Difference of Two Squares and the Sum and Difference of Two Cubes

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Factor the perfect square.

299) $x^2 + 32x + 256$

A) $x^2 + 32x + 256$ B) $(x - 16)^2$ C) $(x + 16)^2$ D) $(x + 16)(x - 16)$

Objective: (0.5) Factor Perfect Squares

300) $x^2 + 4x + 4$

A) $(x + 2)(x - 2)$ B) $(x + 4)(x - 4)$ C) $(x + 2)^2$ D) $(x - 2)^2$

Objective: (0.5) Factor Perfect Squares

301) $64x^2 - 112x + 49$

A) $(8x - 7)^2$ B) $(8x - 8)^2$ C) $(8x + 7)(8x - 7)$ D) $(8x + 7)^2$

Objective: (0.5) Factor Perfect Squares

302) $49x^2 + 56x + 16$

A) $(7x - 4)^2$ B) $(7x + 4)^2$ C) $(7x + 4)(7x - 4)$ D) $(7x - 5)^2$

Objective: (0.5) Factor Perfect Squares

303) $x^4 + 12x^2 + 36$

A) $(x + 6)^2$ B) $(x^2 - 6)^2$ C) $(x^2 + 6)^2$ D) $(x + 6)(x - 6)$

Objective: (0.5) Factor Perfect Squares

Factor completely. If the polynomial cannot be factored, say it is prime.

304) $50x^2 - 180x + 162$

A) $2(5x + 9)^2$ B) $2(5x - 9)(5x + 9)$ C) $2(5x - 9)^2$ D) prime

Objective: (0.5) Factor Perfect Squares

305) $x^3 + 32x^2 + 256x$

A) $x(x + 16)^2$ B) $x(x + 16)(x - 16)$ C) $x(x - 16)^2$ D) prime

Objective: (0.5) Factor Perfect Squares

Factor the polynomial.

306) $x^2 - x - 56$

A) $(x + 1)(x - 56)$ B) $(x + 8)(x - 7)$ C) $(x + 7)(x - 8)$ D) prime

Objective: (0.5) Factor a Second-Degree Polynomial: x^2 + Bx + C

307) $x^2 - 2x - 35$

A) $(x + 7)(x + 5)$ B) $(x + 7)(x + 1)$ C) $(x - 7)(x + 5)$ D) prime

Objective: (0.5) Factor a Second-Degree Polynomial: x^2 + Bx + C

308) $x^2 + 3x - 18$

A) $(x - 6)(x + 1)$ B) $(x - 6)(x + 3)$ C) $(x + 6)(x - 3)$ D) prime

Objective: (0.5) Factor a Second-Degree Polynomial: x^2 + Bx + C

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309) $x^2 + 36$

A) $(x + 6)^2$ B) $(x - 6)^2$ C) $(x + 6)(x - 6)$ D) prime

Objective: (0.5) Factor a Second-Degree Polynomial: x^2 + Bx + C

Factor completely. If the polynomial cannot be factored, say it is prime.

310) $8x^2 - 8x - 48$

A) $(8x + 16)(x - 3)$ B) $8(x - 2)(x + 3)$ C) $8(x + 2)(x - 3)$ D) prime

Objective: (0.5) Factor a Second-Degree Polynomial: x^2 + Bx + C

311) $3x^2 - 21x + 36$

A) $3(x - 4)(x - 3)$ B) $(x - 4)(3x - 9)$ C) $3(x - 12)(x + 1)$ D) prime

Objective: (0.5) Factor a Second-Degree Polynomial: x^2 + Bx + C

312) $3x^3 + 3x^2 - 36x$

A) $(x - 3)(3x^2 + 12)$ B) $(3x^2 + 9x)(x - 4)$ C) $3x(x + 3)(x - 4)$ D) $3x(x - 3)(x + 4)$

Objective: (0.5) Factor a Second-Degree Polynomial: x^2 + Bx + C

313) $(x + 8)^2 - 7(x + 8) + 10$

A) $(x + 10)(x + 13)$ B) $(x^2 - 8x + 2)(x^2 - 8x + 5)$

C) $(x^2 + 8x - 2)(x^2 + 8x - 5)$ D) $(x + 6)(x + 3)$

Objective: (0.5) Factor a Second-Degree Polynomial: x^2 + Bx + C

314) $x^4 + 8x^2 + 7$

A) $(x^2 + 1)(x^2 + 7)$ B) $(x^2 - 1)(x^2 + 1)$ C) $(x^2 - 1)(x^2 + 7)$ D) Prime

Objective: (0.5) Factor a Second-Degree Polynomial: x^2 + Bx + C

Factor the polynomial by grouping.

315) $x^2 + 5x + 6x + 30$

A) $(x - 5)(x + 6)$ B) $(x - 5)(x - 6)$ C) $(x + 5)(x + 6)$ D) prime

Objective: (0.5) Factor by Grouping

316) $2x^2 + 9x + 18x + 81$

A) $(2x + 9)(2x + 9)$ B) $(x + 9)(2x + 9)$ C) $(2x + 9)(9x + 2)$ D) prime

Objective: (0.5) Factor by Grouping

317) $15x^2 + 10x + 18x + 12$

A) $(5x - 6)(3x - 2)$ B) $(15x + 6)(x + 2)$ C) $(15x - 6)(x - 2)$ D) $(5x + 6)(3x + 2)$

Objective: (0.5) Factor by Grouping

318) $10x^2 - 4x - 25x + 10$

A) $(2x + 5)(5x + 2)$ B) $(10x - 5)(x - 2)$ C) $(2x - 5)(5x - 2)$ D) $(10x + 5)(x + 2)$

Objective: (0.5) Factor by Grouping

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Factor completely. If the polynomial cannot be factored, say it is prime.

319) $x^3 - 36x + 5x^2 - 180$

A) $(x^2 - 36)(x + 5)$ B) $(x - 6)^2(x + 5)$ C) $(x + 6)(x - 6)(x + 5)$ D) prime

Objective: (0.5) Factor by Grouping

320) $3x^2 - 18x - 21x + 126$

A) $3(x + 6)(x + 7)$ B) $(x - 6)(3x - 21)$ C) $3(x - 6)(x - 7)$ D) $(x - 6)(x - 7)$

Objective: (0.5) Factor by Grouping

321) $2y^3 + 12y^2 - 10y^2 - 60y$

A) $(y + 6)(y - 5)$ B) $2y(y - 6)(y + 5)$ C) $(y + 6)(2y^2 - 10y)$ D) $2y(y + 6)(y - 5)$

Objective: (0.5) Factor by Grouping

322) $15x^4 + 12x^2 + 10x^2 + 8$

A) $(3x^2 - 2)(5x^2 - 4)$ B) $(15x^2 - 2)(x^2 - 4)$ C) $(3x^2 + 2)(5x^2 + 4)$ D) $(3x^4 + 2)(5x + 4)$

Objective: (0.5) Factor by Grouping

323) $6x^2 + 15xy - 10xy - 25y^2$

A) $(6x - 5y)(x + 5y)$ B) $(3x + 5y)(2x + 5y)$ C) $(3x - 5y)(2x + 5y)$ D) $(3x - 5)(2x + 5)$

Objective: (0.5) Factor by Grouping

324) $6x^3 - 15x^2y + 10xy^2 - 25y^3$

A) $(3x^2 + 5y)(2x - 5y)$ B) $(3x^2 - 5y^2)(2x + 5y)$

C) $(3x^2 + 5y^2)(2x - 5y)$ D) $(6x^2 + 5y^2)(x - 5y)$

Objective: (0.5) Factor by Grouping

An expression that occurs in calculus is given. Factor completely.

325) $2(x + 6)(x - 5)^3 + (x + 6)^2 \cdot 6(x - 5)^2$

A) $(x + 6)(x - 5)^2(8x + 26)$ B) $2(x + 5)(x - 6)^2(4x + 13)$

C) $(x + 6)(x - 5)^2(4x + 13)$ D) $2(x + 6)(x - 5)^2(4x + 13)$

Objective: (0.5) Factor by Grouping

326) $(2x + 1)^2 + 3(2x + 1) - 4$

A) $2x(2x + 1)$ B) $2x - 1$ C) $2x(2x + 5)$ D) $2x - 6$

Objective: (0.5) Factor by Grouping

327) $3(x + 5)^2(2x - 1)^2 + 4(x + 5)^3(2x - 1)$

A) $(x + 5)^2(2x - 1)(10x + 17)$ B) $(x + 5)^2(10x + 17)$

C) $(x + 5)(2x - 1)(10x + 17)$ D) $(x + 5)^2(2x - 1)(x + 17)$

Objective: (0.5) Factor by Grouping

Factor the polynomial.

328) $20x^2 + 27x + 9$

A) $(20x + 3)(x + 3)$ B) $(4x - 3)(5x - 3)$ C) $(4x + 3)(5x + 3)$ D) prime

Objective: (0.5) Factor a Second-Degree Polynomial: Ax^2 + Bx + C, A ≠ 1

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329) $20y^2 + 27y + 9$

A) $(4y - 3)(5y - 3)$ B) $(20y + 3)(y + 3)$ C) $(4y + 3)(5y + 3)$ D) prime

Objective: (0.5) Factor a Second–Degree Polynomial: Ax^2 + Bx + C, A ≠ 1

330) $9z^2 - 6z - 8$

A) $(9z + 2)(z - 4)$ B) $(3z + 2)(3z - 4)$ C) $(3z - 2)(3z + 4)$ D) prime

Objective: (0.5) Factor a Second–Degree Polynomial: Ax^2 + Bx + C, A ≠ 1

331) $6z^2 + 5z - 6$

A) $(6z - 2)(z + 3)$ B) $(3z - 2)(2z + 3)$ C) $(3z + 2)(2z - 3)$ D) prime

Objective: (0.5) Factor a Second–Degree Polynomial: Ax^2 + Bx + C, A ≠ 1

332) $6x^2 + 5xt - 6t^2$

A) $(6x + 3t)(x - 2t)$ B) $(2x + 3t)(3x - 2t)$ C) $(2x - 3t)(3x + 2t)$ D) prime

Objective: (0.5) Factor a Second–Degree Polynomial: Ax^2 + Bx + C, A ≠ 1

333) $15z^2 + 2z - 8$

A) $(15z - 2)(z + 4)$ B) $(3z - 2)(5z + 4)$ C) $(3z + 2)(5z - 4)$ D) prime

Objective: (0.5) Factor a Second–Degree Polynomial: Ax^2 + Bx + C, A ≠ 1

334) $x^2 - x - 45$

A) $(x + 5)(x - 9)$ B) $(x - 5)(x + 9)$ C) $(x - 45)(x + 1)$ D) prime

Objective: (0.5) Factor a Second–Degree Polynomial: Ax^2 + Bx + C, A ≠ 1

Factor completely. If the polynomial cannot be factored, say it is prime.

335) $21x^2 - 91x - 70$

A) $7(3x - 2)(x + 5)$ B) $(21x + 14)(x - 5)$ C) $7(3x + 2)(x - 5)$ D) prime

Objective: (0.5) Factor a Second–Degree Polynomial: Ax^2 + Bx + C, A ≠ 1

336) $10x^2 - 35x - 20$

A) $(10x - 5)(x + 4)$ B) $5(2x - 1)(x + 4)$ C) $5(2x + 1)(x - 4)$ D) prime

Objective: (0.5) Factor a Second–Degree Polynomial: Ax^2 + Bx + C, A ≠ 1

337) $18y^2 + 81y - 45$

A) $9(2y + 1)(y - 5)$ B) $9(2y - 1)(y + 5)$ C) $(18y - 9)(y + 5)$ D) prime

Objective: (0.5) Factor a Second–Degree Polynomial: Ax^2 + Bx + C, A ≠ 1

338) $12x^2 - 57x + 63$

A) $(4x - 7)(3x - 3)$ B) $3(4x + 7)(x + 3)$ C) $3(4x - 7)(x - 3)$ D) prime

Objective: (0.5) Factor a Second–Degree Polynomial: Ax^2 + Bx + C, A ≠ 1

339) $8x^3 + 26x^2 + 15x$

A) $x(4x + 5)(2x + 3)$ B) $x^2(2x + 5)(4x + 3)$ C) $(2x^2 + 5)(4x + 3)$ D) $x(2x + 5)(4x + 3)$

Objective: (0.5) Factor a Second–Degree Polynomial: Ax^2 + Bx + C, A ≠ 1

340) $48x^2 + 92x + 40$

A) $4(10x + 2)(x + 5)$ B) $4(3x + 2)(4x + 5)$ C) $4(3x + 1)(4x + 10)$ D) $(3x + 1)(4x + 10)$

Objective: (0.5) Factor a Second–Degree Polynomial: Ax^2 + Bx + C, A ≠ 1

341) $10(x - 5)^2 - 9(x - 5) - 9$

A) $(2x - 13)(5x - 22)$ B) $(2x + 13)(5x + 28)$ C) $(2x + 8)(5x + 8)$ D) $(2x + 3)(5x + 3)$

Objective: (0.5) Factor a Second–Degree Polynomial: Ax^2 + Bx + C, A ≠ 1

342) $8x^4 + 18x^2 + 9$

A) $(8x^2 + 3)(x^2 + 3)$ B) $(2x^2 + 1)(4x^2 + 9)$ C) $(4x^2 - 3)(2x^2 - 3)$ D) $(2x^2 + 3)(4x^2 + 3)$

Objective: (0.5) Factor a Second–Degree Polynomial: Ax^2 + Bx + C, A ≠ 1

343) $10x^4 - 7x^2 - 12$

A) $(2x^2 + 1)(5x^2 - 12)$ B) $(5x - 4)(2x + 3)$ C) $(10x^2 - 3)(x^2 + 4)$ D) $(2x^2 - 3)(5x^2 + 4)$

Objective: (0.5) Factor a Second–Degree Polynomial: Ax^2 + Bx + C, A ≠ 1

344) $10x^6 + 7x^3 - 12$

A) $(5x^3 + 4)(2x^3 - 3)$ B) $(2x^3 + 3)(5x^3 - 4)$ C) $10(x^3 - 4)(x^3 + 3)$ D) $(2x^3 + 1)(5x^3 - 12)$

Objective: (0.5) Factor a Second–Degree Polynomial: Ax^2 + Bx + C, A ≠ 1

345) $7y^6 - 39y^3 + 20$

A) $y^4(7y - 4)(y - 5)$ B) $y^2(7y^2 - 4)(y^2 - 5)$

C) $(7y^3 - 4)(y^3 - 5)$ D) $(7y^3 - 5y^2 + y - 4)(y^3 - 4y^2 + y - 5)$

Objective: (0.5) Factor a Second–Degree Polynomial: Ax^2 + Bx + C, A ≠ 1

What number should be added to complete the square of the expression?

346) $x^2 + 14x$

A) 25 B) 98 C) 49 D) 7

Objective: (0.5) Complete the Square

347) $x^2 - 18x$

A) 41 B) 162 C) –9 D) 81

Objective: (0.5) Complete the Square

348) $x^2 + \frac{2}{5}x$

A) $\frac{1}{5}$ B) $\frac{4}{25}$ C) $\frac{1}{25}$ D) $\frac{2}{25}$

Objective: (0.5) Complete the Square

349) $x^2 - \frac{3}{4}x$

A) $-\frac{1}{4}$ B) $-\frac{9}{32}$ C) $\frac{9}{16}$ D) $\frac{9}{64}$

Objective: (0.5) Complete the Square

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350) $x^2 - x$

A) $\frac{1}{4}$ B) $\frac{1}{2}$ C) 4 D) 1

Objective: (0.5) Complete the Square

Use synthetic division to find the quotient and the remainder.

351) $x^2 + 16x + 55$ is divided by $x + 9$

A) $x + 7$; remainder -8 B) $x + 7$; remainder 0 C) $x + 8$; remainder 0 D) $x + 7$; remainder 8

Objective: (0.6) Divide Polynomials Using Synthetic Division

352) $x^3 - x^2 + 3$ is divided by $x + 2$

A) $x^2 + x + 2$; remainder -9

B) $x^2 - 3x + 6$; remainder -9

C) $x^2 - 3x + 6$; remainder 2

D) $3x^2 - 4x + 2$; remainder 0

Objective: (0.6) Divide Polynomials Using Synthetic Division

353) $x^5 + x^3 + 5$ is divided by $x - 2$

A) $x^4 + 3$; remainder 11

B) $x^4 + 3x^2$; remainder 11

C) $x^4 + 2x^3 + 5x^2 + 10x + 20$; remainder 45

D) $x^4 + 2x^3 + 4x^2 + 9x + 18$; remainder 41

Objective: (0.6) Divide Polynomials Using Synthetic Division

354) $-3x^3 - 9x^2 - 7x - 2$ is divided by $x + 2$

A) $-\frac{3}{2}x^2 - \frac{9}{2}x - \frac{7}{2}$; remainder 0

B) $-3x^2\, x - \frac{9}{2} - 1$; remainder0

C) $3x^2 - 2x - 1$; remainder 0

D) $-3x^2 - 3x - 1$; remainder 0

Objective: (0.6) Divide Polynomials Using Synthetic Division

355) $x^5 + 9x^4 + 15x^3 - 16x^2 + 10x - 10$ is divided by $x + 6$

A) $x^3 + 3x^2 - 3x + 2$; remainder 2

B) $x^4 + 3x^3 - 3x^2 + 2x + 2$; remainder 4

C) $x^4 + 3x^3 - 3x^2 + 2x - 2$; remainder 2

D) $x^4 + 3x^3 - 3x^2 + 2x + 2$; remainder 0

Objective: (0.6) Divide Polynomials Using Synthetic Division

356) $x^4 - 4$ is divided by $x - 5$

A) $x^3 + 9x^2 + 10x + 5$; remainder 621

B) $x^3 + 5x^2 + 25x + 125$; remainder 621

C) $x^3 + 4x^2 + 16x + 64$; remainder 251

D) $x^3 + 5x^2 + 25x + 125$; remainder 251

Objective: (0.6) Divide Polynomials Using Synthetic Division

357) $x^4 + 16$ is divided by $x - 2$

A) $x^3 - 2x^2 + 4x - 8$; remainder 32

B) $x^3 + 2x^2 + 4x + 8$; remainder 32

C) $x^3 + 2x^2 + 4x + 8$; remainder 0

D) $x^3 + 2x^2 + 4x + 8$; remainder 16

Objective: (0.6) Divide Polynomials Using Synthetic Division

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358) $6x^5 - 5x^4 + x - 4$ is divided by $x + \frac{1}{2}$

A) $6x^4 - 8x^3 + 4x^2 - 2x + 2$; remainder -5

B) $6x^4 - 2x^3 + x^2 - \frac{1}{2}x + \frac{5}{4}$; remainder $-\frac{37}{8}$

C) $6x^4 - 8x^3 + 5$; remainder $-\frac{13}{2}$

D) $6x^4 - 2x^3 - x^2 + \frac{1}{2}x + \frac{5}{4}$; remainder $-\frac{27}{8}$

Objective: (0.6) Divide Polynomials Using Synthetic Division

Use synthetic division to determine whether x – c is a factor of the given polynomial.

359) $x^3 - 12x^2 + 45x - 50$; $x - 5$

A) Yes B) No

Objective: (0.6) Divide Polynomials Using Synthetic Division

360) $x^3 + 11x^2 + 20x - 32$; $x - 6$

A) Yes B) No

Objective: (0.6) Divide Polynomials Using Synthetic Division

361) $x^3 - 5x^2 - 22x + 56$; $x + 4$

A) Yes B) No

Objective: (0.6) Divide Polynomials Using Synthetic Division

362) $x^3 - 10x^2 + 14x + 80$; $x + 4$

A) Yes B) No

Objective: (0.6) Divide Polynomials Using Synthetic Division

363) $4x^3 - 23x^2 + 40x - 21$; $x - 5$

A) Yes B) No

Objective: (0.6) Divide Polynomials Using Synthetic Division

364) $3x^3 - 24x^2 + 3x + 126$; $x + 5$

A) Yes B) No

Objective: (0.6) Divide Polynomials Using Synthetic Division

365) $3x^3 - 19x^2 - 4x + 60$; $x - 6$

A) Yes B) No

Objective: (0.6) Divide Polynomials Using Synthetic Division

366) $2x^3 - 17x^2 - 7x + 120$; $x - 8$

A) Yes B) No

Objective: (0.6) Divide Polynomials Using Synthetic Division

367) $6x^5 - 5x^4 + x - 4$; $x + \frac{1}{2}$

A) Yes B) No

Objective: (0.6) Divide Polynomials Using Synthetic Division

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Reduce the rational expression to lowest terms.

368) $\frac{x^2 - 36}{x - 6}$

A) $x - 6$ B) $x + 6$ C) $\frac{1}{x + 6}$ D) $\frac{1}{x - 6}$

Objective: (0.7) Reduce a Rational Expression to Lowest Terms

369) $\frac{3x + 2}{15x^2 + 16x + 4}$

A) $\frac{1}{5x + 2}$ B) $\frac{3x + 5}{5x + 16}$ C) $\frac{3x}{5x + 2}$ D) $\frac{3x + 2}{15x^2 + 16x + 4}$

Objective: (0.7) Reduce a Rational Expression to Lowest Terms

370) $\frac{y^2 + 13y + 42}{y^2 + 15y + 54}$

A) $-\frac{y^2 + 13y + 42}{y^2 + 15y + 54}$ B) $\frac{13y + 42}{15y + 54}$ C) $\frac{y + 7}{y + 9}$ D) $\frac{13y + 7}{15y + 9}$

Objective: (0.7) Reduce a Rational Expression to Lowest Terms

371) $\frac{2x^2 - 7x + 5}{x - 1}$

A) $2x - 5$ B) $\frac{1}{x - 1}$ C) $2x^2 - 12$ D) $\frac{2x^2 - 7x + 5}{x - 1}$

Objective: (0.7) Reduce a Rational Expression to Lowest Terms

372) $\frac{x^2 + 9x + 20}{x^2 + 13x + 36}$

A) $\frac{9x + 20}{13x + 36}$ B) $\frac{9x + 5}{13x + 9}$ C) $-\frac{x^2 + 9x + 20}{x^2 + 13x + 36}$ D) $\frac{x + 5}{x + 9}$

Objective: (0.7) Reduce a Rational Expression to Lowest Terms

373) $\frac{2x^2 - 13x + 15}{3x^2 - 13x - 10}$

A) $\frac{x+ 3}{x - 2}$ B) $\frac{2x- 3}{3x + 2}$ C) $\frac{2x - 5}{3x + 5}$ D) $\frac{x - 2}{x + 3}$

Objective: (0.7) Reduce a Rational Expression to Lowest Terms

374) $\frac{7x^2 + 21x^3}{9x + 27x^2}$

A) $\frac{7x^2 + 21x^3}{9x + 27x^2}$ B) $\frac{7x}{9}$ C) $\frac{7 + 21x^3}{9x + 27}$ D) $\frac{7}{9}$

Objective: (0.7) Reduce a Rational Expression to Lowest Terms

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375) $\frac{y^3 - 216}{y - 6}$

A) $y^2 - 36$ B) $\frac{1}{y - 6}$ C) $y^2 + 6y + 36$ D) $\frac{y^3 - 216}{y - 6}$

Objective: (0.7) Reduce a Rational Expression to Lowest Terms

An expression that occurs in calculus is given. Reduce the expression to lowest terms.

376) $\frac{(x^2 + 2) \cdot 7 - (7x + 8) \cdot 3x}{(x^2 + 2)^3}$

A) $\frac{-14x^2 - 24x + 14}{(x^2 + 2)^3}$ B) $\frac{14x^2 + 24x - 14}{(x^2 + 2)^3}$ C) $\frac{-21x^2 - 24x + 7}{(x^2 + 2)^2}$ D) $\frac{-28x^2 - 24x + 14}{(x^2 + 2)^3}$

Objective: (0.7) Reduce a Rational Expression to Lowest Terms

377) $\frac{(2x + 5)4x - 2x^2(2)}{(2x + 5)^2}$

A) $\frac{2x}{(x + 5)^2}$ B) $\frac{4(x + 5)}{(2x + 5)^2}$ C) $\frac{4x}{(2x + 5)^2}$ D) $\frac{4x(x + 5)}{(2x + 5)^2}$

Objective: (0.7) Reduce a Rational Expression to Lowest Terms

Perform the indicated operations and simplify the result. Leave the answer in factored form.

378) $\frac{5x}{10x + 5} \cdot \frac{14x + 7}{2}$

A) $\frac{7}{2}$ B) $\frac{x}{2}$ C) $\frac{7x}{10}$ D) $\frac{7x}{2}$

Objective: (0.7) Multiply and Divide Rational Expressions

379) $\frac{8x - 8}{x} \cdot \frac{4x^2}{9x - 9}$

A) $\frac{72x^2 + 144x + 72}{4x^3}$ B) $\frac{32x^3 - 32x^2}{9x^2 - 9x}$ C) $\frac{9}{32x}$ D) $\frac{32x}{9}$

Objective: (0.7) Multiply and Divide Rational Expressions

380) $\frac{x^3 + 1}{x^3 - x^2 + x} \cdot \frac{6x}{-42x - 42}$

A) $-\frac{x^2 + 1}{7}$ B) $-\frac{1}{7}$ C) $-\frac{x^3 + 1}{7(x + 1)}$ D) $\frac{x + 1}{7(-x - 1)}$

Objective: (0.7) Multiply and Divide Rational Expressions

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381) $\frac{x^2 + 10x + 25}{x^2 + 11x + 30} \cdot \frac{x^2 + 11x + 30}{x^2 + 10x + 25}$

A) 1 B) $\frac{x + 5}{x + 6}$ C) $\frac{x + 6}{x + 5}$ D) $\frac{1}{x + 5}$

Objective: (0.7) Multiply and Divide Rational Expressions

382) $\frac{x^2 - 15x + 36}{x^2 - 21x + 110} \cdot \frac{x^2 - 19x + 88}{x^2 - 12x + 27}$

A) $\frac{(x^2 - 15x + 36)(x^2 - 19x + 88)}{(x^2 - 21x + 110)(x^2 - 12x + 27)}$ B) $\frac{(x + 12)(x + 8)}{(x + 10)(x + 9)}$

C) $\frac{(x - 12)}{(x - 9)}$ D) $\frac{(x - 12)(x - 8)}{(x - 10)(x - 9)}$

Objective: (0.7) Multiply and Divide Rational Expressions

383) $\frac{x^2 + 8x + 12}{x^2 + 10x + 24} \cdot \frac{x^2 + 4x}{x^2 - 6x - 16}$

A) $\frac{x(x + 4)}{x - 8}$ B) $\frac{x}{x^2 + 10x + 24}$ C) $\frac{x}{x - 8}$ D) $\frac{1}{x - 8}$

Objective: (0.7) Multiply and Divide Rational Expressions

384) $\frac{9x^4 - 72x}{3x^2 - 12} \cdot \frac{x^2 + x - 2}{4x^3 + 8x^2 + 16x}$

A) $\frac{3x(x - 1)(x - 2)^2}{4(x + 2)^2}$ B) $\frac{3x(x + 1)}{4}$ C) $\frac{3(x - 1)}{4}$ D) $\frac{3x(x - 1)}{4}$

Objective: (0.7) Multiply and Divide Rational Expressions

385) $\frac{x^2 + 8x + 16}{x^2 + 13x + 36} \cdot \frac{x^2 + 9x}{x^2 + 13x + 36}$

A) $\frac{1}{x + 9}$ B) $\frac{x^2 + 9x}{x + 9}$ C) $\frac{x}{x + 9}$ D) $\frac{x}{x^2 + 13x + 36}$

Objective: (0.7) Multiply and Divide Rational Expressions

386) $\frac{10x^2 - 3x - 4}{5x^2 - x - 4} \cdot \frac{15x^2 + 12x}{1 - 4x^2}$

A) $\frac{3x}{(1 - 2x)(x - 1)}$ B) $\frac{3x(5x + 4)}{(1 - 2x)(x - 1)}$ C) $\frac{(5x + 4)(5x - 4)}{(1 - 2x)(x - 1)}$ D) $\frac{3x(5x - 4)}{(1 - 2x)(x - 1)}$

Objective: (0.7) Multiply and Divide Rational Expressions

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387)

$$\frac{\frac{18x - 18}{5}}{\frac{6x - 6}{55}}$$

A) $\frac{11(18x - 18)}{6x - 6}$ B) $\frac{108(x - 1)^2}{275}$ C) $\frac{1}{33}$ D) 33

Objective: (0.7) Multiply and Divide Rational Expressions

388)

$$\frac{\frac{3x - 3}{x}}{\frac{4x - 4}{3x^2}}$$

A) $\frac{12(x + 1)^2}{3x^3}$ B) $\frac{4}{9x}$ C) $\frac{9x}{4}$ D) $\frac{9x^2(x - 1)}{4x(x - 1)}$

Objective: (0.7) Multiply and Divide Rational Expressions

389)

$$\frac{\frac{x^2 + 10x + 16}{x^2 + 11x + 18}}{\frac{x^2 + 8x}{x^2 + 18x + 81}}$$

A) $\frac{x + 9}{x}$ B) $x + 9$ C) $\frac{x}{(x + 9)(x + 2)}$ D) $\frac{x + 9}{x(x + 9)}$

Objective: (0.7) Multiply and Divide Rational Expressions

390)

$$\frac{\frac{x^2 - 14x + 49}{3x - 21}}{\frac{4x - 28}{12}}$$

A) $\frac{(x - 7)^2}{9}$ B) 1 C) 12 D) $\frac{x^2 - 14x + 49}{(x - 7)^2}$

Objective: (0.7) Multiply and Divide Rational Expressions

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391)

$$\frac{\frac{1}{x+6}}{\frac{5}{x^2-36}}$$

A) $\frac{x+6}{5}$ B) $x-6$ C) $\frac{5}{x-6}$ D) $\frac{x-6}{5}$

Objective: (0.7) Multiply and Divide Rational Expressions

392)

$$\frac{\frac{x^2-16}{x}}{\frac{x+4}{x+6}}$$

A) $(x-4)(x+6)$ B) $\frac{(x+4)(x^2+4)}{x(x+6)}$ C) $\frac{(x-4)(x+6)}{x}$ D) $\frac{x}{(x-4)(x+6)}$

Objective: (0.7) Multiply and Divide Rational Expressions

393)

$$\frac{\frac{4x^2-1}{x^2-49}}{\frac{2x+1}{x-7}}$$

A) $\frac{2x-1}{x+7}$ B) $\frac{x+7}{2x-1}$ C) $\frac{2x+1}{x-7}$ D) $\frac{(2x+1)(4x^2-1)}{(x^2-7)(x-7)}$

Objective: (0.7) Multiply and Divide Rational Expressions

394) $\frac{x}{12}-\frac{10}{7}$

A) $\frac{x-10}{84}$ B) $\frac{7x-120}{84}$ C) $\frac{7x+120}{120}$ D) $\frac{x-10}{19}$

Objective: (0.7) Add and Subtract Rational Expressions

395) $\frac{6x+2}{2}-\frac{6x-2}{2}$

A) 4 B) 2 C) 0 D) 6x

Objective: (0.7) Add and Subtract Rational Expressions

396) $\frac{7x^2}{x-1}-\frac{7x}{x-1}$

A) $\frac{7x}{x-1}$ B) 0 C) 7x D) $\frac{7x(x+1)}{x-1}$

Objective: (0.7) Add and Subtract Rational Expressions

397) $\frac{2}{7x} - \frac{6}{7x}$

A) $\frac{-2}{7x}$ B) $\frac{-4}{7x}$ C) 1 D) $\frac{7}{-4x}$

Objective: (0.7) Add and Subtract Rational Expressions

398) $\frac{1}{2x} + \frac{2}{3x}$

A) $\frac{7}{6x}$ B) 1 C) $\frac{6}{7x}$ D) $\frac{7}{12x}$

Objective: (0.7) Add and Subtract Rational Expressions

399) $\frac{7x - 4}{x} + \frac{6x + 7}{4x}$

A) $\frac{34x + 23}{4x}$ B) $\frac{34x - 9}{4x}$ C) $\frac{22x - 9}{4x}$ D) $\frac{34x - 9}{4x^2}$

Objective: (0.7) Add and Subtract Rational Expressions

400) $\frac{6}{x^2} - \frac{9}{x}$

A) $\frac{3(2x + 3)}{x^2}$ B) $\frac{3(2 - 3x)}{x^2}$ C) $\frac{3(3x - 2)}{x}$ D) $\frac{3(2 + 3x)}{x^2}$

Objective: (0.7) Add and Subtract Rational Expressions

401) $\frac{3}{x} + \frac{7}{x - 2}$

A) $\frac{6x - 10}{x(2 - x)}$ B) $\frac{10x - 6}{x(2 - x)}$ C) $\frac{6x - 10}{x(x - 2)}$ D) $\frac{10x - 6}{x(x - 2)}$

Objective: (0.7) Add and Subtract Rational Expressions

402) $\frac{2}{x + 3} - \frac{5}{x - 3}$

A) $\frac{-3}{(x + 3)(x - 3)}$ B) $\frac{-3x - 21}{(x + 3)(x - 3)}$ C) $\frac{-3x + 9}{(x + 3)(x - 3)}$ D) $\frac{-3x + 21}{(x + 3)(x - 3)}$

Objective: (0.7) Add and Subtract Rational Expressions

403) $\frac{19}{x - 9} + \frac{11}{x - 9}$

A) $\frac{19(x - 9)}{11(x - 9)}$ B) $\frac{8}{x}$ C) $\frac{30}{x - 9}$ D) $\frac{8}{x - 9}$

Objective: (0.7) Add and Subtract Rational Expressions

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404) $\frac{6x^2}{x-1} - \frac{6x}{x-1}$

A) 0 B) $\frac{6x}{x-1}$ C) $6x$ D) $\frac{6x(x+1)}{x-1}$

Objective: (0.7) Add and Subtract Rational Expressions

405) $\frac{5-x}{x-6} - \frac{2x+6}{6-x}$

A) $\frac{x-1}{x-6}$ B) $-\frac{x+11}{x-6}$ C) $-\frac{x-1}{x-6}$ D) $\frac{x+11}{x-6}$

Objective: (0.7) Add and Subtract Rational Expressions

406) $\frac{x+3}{x+4} - \frac{x+3}{x-9}$

A) $\frac{13(x+3)}{(x+4)(x-9)}$ B) $\frac{-13(x+3)}{(x+4)(x-9)}$ C) $\frac{-5(x+3)}{(x+4)(x-9)}$ D) 0

Objective: (0.7) Add and Subtract Rational Expressions

407) $\frac{7x}{x-6} + \frac{4}{6-x}$

A) $\frac{7x+4}{x-6}$ B) $\frac{7x-4}{6-x}$ C) $\frac{3x}{x-6}$ D) $\frac{7x-4}{x-6}$

Objective: (0.7) Add and Subtract Rational Expressions

408) $\frac{x^2-7x}{x-3} + \frac{12}{x-3}$

A) $x-4$ B) $x+3$ C) $x-3$ D) $x+4$

Objective: (0.7) Add and Subtract Rational Expressions

Find the LCM of the given polynomials.

409) $x,\ x+2$

A) x B) $x^2(x+2)$ C) $x+2$ D) $x(x+2)$

Objective: (0.7) Use the Least Common Multiple Method

410) $4x+24,\ x^2+6x$

A) $4x^2+6$ B) $4x(x+6)$ C) $4x^2+24$ D) $4x+6$

Objective: (0.7) Use the Least Common Multiple Method

411) $x^2+12x+36,\ x^2+6x$

A) $(x+6)^2$ B) $x(x+6)$ C) $x(x+6)^2$ D) $x(x+1)(x+6)$

Objective: (0.7) Use the Least Common Multiple Method

412) $x^2+9x+18,\ 2x+6$

A) $2(x+6)(x-3)$ B) $2(x-6)(x-3)$ C) $2(x-6)(x+3)$ D) $2(x+6)(x+3)$

Objective: (0.7) Use the Least Common Multiple Method

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413) $x^2 + 11x + 30,\ x^2 + 3x - 18$

A) $(x + 5)(x + 6)(x - 3)$ B) $(x + 5)(x + 6)$ C) $(x - 5)(x - 6)(x - 3)$ D) $(x + 6)(x - 3)$

Objective: (0.7) Use the Least Common Multiple Method

414) $x - 7,\ 7 - x$

A) $x + 7$ B) $(x - 7)(7 - x)$ C) -1 D) $(x - 7)$ or $(7 - x)$

Objective: (0.7) Use the Least Common Multiple Method

415) $3x - 7,\ 3x + 7$

A) $(3x - 7)$ or $(3x + 7)$ B) $(3x - 7)(3x + 7)$ C) $(3x + 7)$ D) $(3x - 7)$

Objective: (0.7) Use the Least Common Multiple Method

416) $x^2 - 8x,\ (x - 8)^2$

A) $x(x - 8)$ B) $x(x + 8)^2$ C) $(x + 8)(x - 8)^2$ D) $x(x - 8)^2$

Objective: (0.7) Use the Least Common Multiple Method

417) $x^2 - 4x - 45,\ x^2 - 25,\ x^2 - 14x + 45$

A) $(x + 9)(x + 5)(x - 5)$ B) $(x + 9)(x - 5)^2$ C) $(x - 9)(x + 5)$ D) $(x - 9)(x + 5)(x - 5)$

Objective: (0.7) Use the Least Common Multiple Method

Perform the indicated operations and simplify the result. Leave the answer in factored form.

418) $\frac{3}{x} + \frac{4}{x - 2}$

A) $\frac{7x - 6}{x(x - 2)}$ B) $\frac{7x - 6}{x(2 - x)}$ C) $\frac{6x - 7}{x(x - 2)}$ D) $\frac{6x - 7}{x(2 - x)}$

Objective: (0.7) Use the Least Common Multiple Method

419) $-\frac{3}{10} - \frac{5}{4x}$

A) $\frac{-6x - 25}{20x}$ B) $\frac{-6x + 25}{20x}$ C) $\frac{-11}{20 - 4x}$ D) $\frac{6x - 25}{20x}$

Objective: (0.7) Use the Least Common Multiple Method

420) $\frac{1}{(x + 3)(x - 2)} - \frac{3}{(x - 2)(x + 5)}$

A) $\frac{-2(x + 2)}{(x + 3)(x - 2)(x + 5)}$ B) $\frac{-2(x + 4)}{(x + 3)(x - 2)(x + 5)}$ C) $\frac{2(2x + 7)}{(x + 3)(x - 2)(x + 5)}$ D) $\frac{2(x + 2)}{(x + 3)(x - 2)(x + 5)}$

Objective: (0.7) Use the Least Common Multiple Method

421) $\frac{x + 3}{x^2 + 2x - 35} + \frac{4x + 3}{x^2 - 8x + 15}$

A) $\frac{5x + 6}{2x^2 - 6x - 20}$ B) $\frac{5x^2 + 31x + 12}{(x + 5)(x - 7)(x + 3)}$ C) $\frac{5x^2 + 31x + 12}{(x - 5)(x + 7)(x - 3)}$ D) $5x + 6$

Objective: (0.7) Use the Least Common Multiple Method

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422) $\frac{3}{x^2 - 3x + 2} + \frac{5}{x^2 - 1}$

A) $\frac{30x - 7}{(x - 1)(x + 1)(x - 2)}$ B) $\frac{8x - 7}{(x - 1)(x - 2)}$ C) $\frac{8x - 7}{(x - 1)(x + 1)(x - 2)}$ D) $\frac{7x - 8}{(x - 1)(x + 1)(x - 2)}$

Objective: (0.7) Use the Least Common Multiple Method

423) $\frac{x}{x^2 - 16} - \frac{8}{x^2 + 5x + 4}$

A) $\frac{x^2 - 7x + 32}{(x - 4)(x + 4)(x + 1)}$ B) $\frac{x^2 - 7}{(x - 4)(x + 4)(x + 1)}$ C) $\frac{x^2 - 7x + 32}{(x - 4)(x + 4)}$ D) $\frac{x^2 + 7x + 32}{(x - 4)(x + 4)(x + 1)}$

Objective: (0.7) Use the Least Common Multiple Method

424) $\frac{18}{x^2 + 3x} + \frac{7}{x} + \frac{6}{x + 3}$

A) $\frac{6}{x}$ B) $\frac{42}{x}$ C) $\frac{13}{x}$ D) $\frac{7}{x}$

Objective: (0.7) Use the Least Common Multiple Method

425) $\frac{5x}{x + 1} + \frac{6}{x - 1} - \frac{10}{x^2 - 1}$

A) $\frac{5x}{x - 1}$ B) $\frac{5x - 4}{x + 1}$ C) $\frac{x + 1}{x - 1}$ D) $\frac{5x - 4}{x - 1}$

Objective: (0.7) Use the Least Common Multiple Method

426) $\frac{3x}{x^2 - 5x - 36} - \frac{x - 1}{x^2 - 16} + \frac{1}{x^2 - 13x + 36}$

A) $\frac{2x^2 - x - 5}{(x - 9)(x + 4)(x - 4)}$ B) $\frac{2x - 1}{(x - 9)(x + 4)}$ C) $\frac{2x - 1}{(x - 9)(x - 4)}$ D) $\frac{2x^2 - 21x + 13}{(x - 9)(x + 4)(x - 4)}$

Objective: (0.7) Use the Least Common Multiple Method

427)

$$\frac{\frac{3}{x} + 3}{\frac{3}{x} - 3}$$

A) $3 - x^2$ B) $\frac{x^2}{3 - x^2}$ C) $\frac{3(1 + x)}{1 - x}$ D) $\frac{1 + x}{1 - x}$

Objective: (0.7) Simplify Complex Rational Expressions

428)

$$\frac{1-\frac{10}{x}}{1+\frac{10}{x}}$$

A) $\frac{x+10}{x-10}$ B) $x-10$ C) $x+10$ D) $\frac{x-10}{x+10}$

Objective: (0.7) Simplify Complex Rational Expressions

429)

$$\frac{\frac{7}{x}+1}{\frac{7}{x}-1}$$

A) 7 B) x^2+7 C) $\frac{x^2}{x^2+7}$ D) $\frac{7+x}{7-x}$

Objective: (0.7) Simplify Complex Rational Expressions

430)

$$\frac{1-\frac{1}{x}}{9+\frac{1}{x}}$$

A) $\frac{x-1}{9x}$ B) $\frac{9x+1}{x-1}$ C) $\frac{x+1}{9x-1}$ D) $\frac{x-1}{9x+1}$

Objective: (0.7) Simplify Complex Rational Expressions

431)

$$\frac{1-\frac{9}{x}}{x-\frac{81}{x}}$$

A) $\frac{1}{x+9}$ B) $x-9$ C) $x+9$ D) $\frac{1}{x-9}$

Objective: (0.7) Simplify Complex Rational Expressions

432)

$$\frac{\frac{x}{81}-\frac{1}{x}}{1+\frac{9}{x}}$$

A) $\frac{81}{x+9}$ B) $\frac{81}{x-9}$ C) $\frac{x+9}{81}$ D) $\frac{x-9}{81}$

Objective: (0.7) Simplify Complex Rational Expressions

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433)

$$\frac{9+\frac{3}{x}}{\frac{x}{4}+\frac{1}{12}}$$

A) $\frac{36}{x}$ B) $\frac{x}{36}$ C) 36 D) 1

Objective: (0.7) Simplify Complex Rational Expressions

434)

$$\frac{\frac{5}{x}+\frac{4}{x^2}}{\frac{25}{x^2}-\frac{16}{x}}$$

A) $\frac{5x+4}{25-16x}$ B) $\frac{5x^2+4}{25-16x}$ C) $\frac{1}{5x-4}$ D) $\frac{1}{5-4x}$

Objective: (0.7) Simplify Complex Rational Expressions

435)

$$\frac{\frac{3}{x}+8}{\frac{9}{x^2}-64}$$

A) $\frac{x}{3x-8}$ B) $\frac{1}{3x-8}$ C) $\frac{1}{3-8x}$ D) $\frac{x}{3-8x}$

Objective: (0.7) Simplify Complex Rational Expressions

436)

$$\frac{x-\frac{x}{x+7}}{x+6}$$

A) $\frac{x}{x+7}$ B) $\frac{x^2}{x+7}$ C) $\frac{x}{x+6}$ D) $\frac{x}{x-7}$

Objective: (0.7) Simplify Complex Rational Expressions

437)

$$\frac{\frac{7}{5x-1}-7}{\frac{7}{5x-1}+7}$$

A) $\frac{2+5x}{5x}$ B) $\frac{2-5x}{5x}$ C) $\frac{5x}{2-5x}$ D) $\frac{2-x}{x}$

Objective: (0.7) Simplify Complex Rational Expressions

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438)

$$\frac{\frac{10}{11-x}+\frac{11}{x-11}}{\frac{3}{x}+\frac{8}{x-11}}$$

A) $-\frac{x}{11x-33}$ B) $\frac{x}{11x-33}$ C) $\frac{21x}{11x-33}$ D) $-\frac{21x}{11x-33}$

Objective: (0.7) Simplify Complex Rational Expressions

439)

$$\frac{\frac{x}{x+6}+1}{\frac{27}{x^2-36}+1}$$

A) $\frac{2x+12}{x+3}$ B) $\frac{2x-12}{x-3}$ C) $\frac{x-6}{x-3}$ D) $\frac{2x-12}{x+3}$

Objective: (0.7) Simplify Complex Rational Expressions

440)

$$\frac{\frac{3}{x+5}+\frac{6}{x+3}}{\frac{3x+13}{x^2+8x+15}}$$

A) $\frac{1}{3}$ B) 3 C) 9 D) $3x + 13$

Objective: (0.7) Simplify Complex Rational Expressions

441)

$$\frac{\frac{x+5}{x-5}+\frac{x-5}{x+5}}{\frac{x+5}{x-5}-\frac{x-5}{x+5}}$$

A) $\frac{(x+5)^2}{10x}$ B) $\frac{(x+5)^3}{20x(x+6)}$ C) 1 D) $\frac{x^2+25}{10x}$

Objective: (0.7) Simplify Complex Rational Expressions

442)

$$\frac{\frac{1}{x+2}+\frac{1}{x-2}}{\frac{1}{x^2-4}}$$

A) 4 B) $2x$ C) x^2 D) -4

Objective: (0.7) Simplify Complex Rational Expressions

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443) $$\frac{\frac{2}{x^2 - 3x - 10} - \frac{1}{x - 5}}{\frac{1}{x + 2} + 1}$$

A) $-\frac{x}{x^2 - 3x - 10}$ B) $\frac{x}{x^2 - 4x - 15}$ C) -1 D) $-\frac{x}{x^2 - 2x - 15}$

Objective: (0.7) Simplify Complex Rational Expressions

Solve the problem.

444) The focal length f of a lens with index of refraction n is $\frac{1}{f} = (n - 1)\left[\frac{1}{R_1} + \frac{1}{R_2}\right]$ where R_1 and R_2 are the radii of curvature of the front and back surfaces of the lens. Express f as a rational expression.

A) $f = \frac{R_1 R_2}{(n - 1)(R_1 + R_2)}$ B) $f = \frac{R_1 R_2}{(n + 1)(R_1 - R_2)}$ C) $f = \frac{(n - 1)(R_1 + R_2)}{R_1 R_2}$ D) $f = \frac{n(R_1 - R_2)}{R_1 R_2}$

Objective: (0.7) Simplify Complex Rational Expressions

445) An electrical circuit contains two resistors connected in parallel. If the resistance of each is R_1 and R_2 ohms, respectively, then their combined resistance R is given the formula

$$R = \frac{1}{\frac{1}{R_1} + \frac{1}{R_2}}$$

If their combined resistance R is 2 ohms and R_2 is 5 ohms, find R_1.

A) $\frac{10}{3}$ ohms B) 3 ohms C) $\frac{2}{3}$ ohms D) $\frac{3}{10}$ ohm

Objective: (0.7) Simplify Complex Rational Expressions

Simplify the expression. Assume that all variables are positive when they appear.

446) $\sqrt[3]{64}$

A) 16 B) 4 C) ±4 D) 8

Objective: (0.8) Work with nth Roots

447) $\sqrt[3]{-8}$

A) -2 B) 4 C) ±2 D) 3

Objective: (0.8) Work with nth Roots

448) $\sqrt[4]{625}$

A) 5 B) 625 C) -5 D) not a real number

Objective: (0.8) Work with nth Roots

449) $\sqrt{100y^8}$

A) $10y^4$ B) $10y^6$ C) $10y^8$ D) $100y^4$

Objective: (0.8) Simplify Radicals

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450) $\sqrt{245x^2}$

A) $7x\sqrt{5}$ B) $7\sqrt{5x}$ C) $5x^2\sqrt{7}$ D) $245x$

Objective: (0.8) Simplify Radicals

451) $\sqrt[3]{-125x^{12}y^{18}}$

A) $5x^4y^6$ B) $25x^4y^6$ C) $-5x^4y^6$ D) $-5x^6y^9$

Objective: (0.8) Simplify Radicals

452) $-\sqrt[3]{-125x^{36}y^{30}}$

A) $5x^{12}y^{15}$ B) $5x^{12}y^{10}$ C) $-5x^{36}y^{10}$ D) $25x^{12}y^{10}$

Objective: (0.8) Simplify Radicals

453) $\sqrt{8x^7y^8}$

A) $2y^4\sqrt{2x^7}$ B) $2x^3y^4\sqrt{2x}$ C) $2x^7y^8\sqrt{2x}$ D) $2x^3y^4\sqrt{2}$

Objective: (0.8) Simplify Radicals

454) $\sqrt[3]{216x^4y^5}$

A) $2xy\sqrt[3]{xy^2}$ B) $6xy\sqrt[3]{xy^2}$ C) $6xy\sqrt[3]{xy}$ D) $6xy\sqrt{xy^2}$

Objective: (0.8) Simplify Radicals

455) $\sqrt{\frac{50x^2y}{49}}$

A) $\frac{5\sqrt{2x^2y}}{7}$ B) $x\sqrt{\frac{50y}{7}}$ C) $25x\sqrt{2y}$ D) $\frac{5x\sqrt{2y}}{7}$

Objective: (0.8) Simplify Radicals

456) $\sqrt{y^7}$

A) $y^3\sqrt{y}$ B) $y\sqrt{y^5}$ C) $y^6\sqrt{y}$ D) $\sqrt{y^7}$

Objective: (0.8) Simplify Radicals

457) $\sqrt[3]{-8x^{36}}$

A) $2x^{12}$ B) $-2x^{12}$ C) $-2x^{33}$ D) $-2x^{36}$

Objective: (0.8) Simplify Radicals

458) $\sqrt[3]{x^{38}}$

A) x^{14} B) $\sqrt[3]{x^{38}}$ C) $x\sqrt[3]{x^{35}}$ D) $x^{12}\sqrt[3]{x^2}$

Objective: (0.8) Simplify Radicals

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459) $\sqrt[3]{\frac{12}{y^{12}}}$

A) $\frac{12}{y^4}$ B) $\frac{\sqrt[3]{12}}{y^4}$ C) $\sqrt[3]{\frac{12}{y^{12}}}$ D) $\frac{\sqrt[3]{12}}{y^9}$

Objective: (0.8) Simplify Radicals

460) $\sqrt[3]{\frac{128}{x^{30}}}$

A) $\frac{4\sqrt[3]{2}}{x^{10}}$ B) $\frac{\sqrt[3]{128}}{x^{10}}$ C) $\sqrt[3]{\frac{128}{x^{30}}}$ D) $\frac{4\sqrt[3]{2}}{x^{27}}$

Objective: (0.8) Simplify Radicals

461) $(\sqrt{13} + 5)(\sqrt{13} - 5)$

A) -12 B) 8 C) $13 - 2\sqrt{5}$ D) 38

Objective: (0.8) Simplify Radicals

462) $(6\sqrt{11})(8\sqrt{110})$

A) $528\sqrt{110}$ B) $48\sqrt{1,210}$ C) $528\sqrt{10}$ D) $5{,}808\sqrt{10}$

Objective: (0.8) Simplify Radicals

463) $\sqrt[3]{35} \cdot \sqrt[3]{25}$

A) $5\sqrt[3]{35}$ B) $\sqrt[3]{875}$ C) $5\sqrt[3]{7}$ D) $\sqrt[6]{875}$

Objective: (0.8) Simplify Radicals

464) $9\sqrt[3]{5} \cdot 2\sqrt[3]{6}$

A) $18\sqrt[3]{5} \cdot \sqrt[3]{6}$ B) $18\sqrt[3]{30}$ C) $18\sqrt[3]{11}$ D) $11\sqrt[3]{30}$

Objective: (0.8) Simplify Radicals

465) $2\sqrt{5} + 5\sqrt{125}$

A) $23\sqrt{5}$ B) $7\sqrt{5}$ C) $-27\sqrt{5}$ D) $27\sqrt{5}$

Objective: (0.8) Simplify Radicals

466) $-4\sqrt{50} + 3\sqrt{8}$

A) $14\sqrt{2}$ B) $26\sqrt{2}$ C) $-26\sqrt{2}$ D) $-14\sqrt{2}$

Objective: (0.8) Simplify Radicals

467) $3\sqrt{125} - 3\sqrt{45} - 7\sqrt{80}$

A) $3\sqrt{5}$ B) $11\sqrt{5}$ C) $-11\sqrt{5}$ D) $-22\sqrt{5}$

Objective: (0.8) Simplify Radicals

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468) $\sqrt{6x^2} - 5\sqrt{150x^2} + 2\sqrt{150x^2}$

A) $-3x\sqrt{142}$ B) $-3x\sqrt{6}$ C) $-14x\sqrt{142}$ D) $-14x\sqrt{6}$

Objective: (0.8) Simplify Radicals

469) $15\sqrt[3]{2} - 3\sqrt[3]{54}$

A) $6\sqrt[3]{2}$ B) $15\sqrt[3]{2} - 3\sqrt[3]{54}$ C) $12\sqrt[3]{2}$ D) $-6\sqrt[3]{2}$

Objective: (0.8) Simplify Radicals

470) $\sqrt[3]{8y} - \sqrt[3]{54y}$

A) $2\sqrt[3]{y} - 3\sqrt[3]{2y}$ B) $5\sqrt[3]{y}$ C) $3\sqrt[3]{2y} - 2\sqrt[3]{y}$ D) $2 - 3\sqrt[3]{2}$

Objective: (0.8) Simplify Radicals

471) $(4\sqrt{5} + 5)^2$

A) $55 + 40\sqrt{5}$ B) $105 - 40\sqrt{5}$ C) $85 + 40\sqrt{5}$ D) $105 + 40\sqrt{5}$

Objective: (0.8) Simplify Radicals

472) $4\sqrt[3]{27x} + 4\sqrt[3]{64x}$

A) $4\sqrt[3]{91x}$ B) $7\sqrt[3]{x}$ C) $28x$ D) $28\sqrt[3]{x}$

Objective: (0.8) Simplify Radicals

473) $3\sqrt[3]{16x} - 2\sqrt[3]{54x}$

A) 0 B) $6\sqrt[3]{x} - 2\sqrt[3]{54x}$ C) $6\sqrt[3]{x}$ D) cannot simplify

Objective: (0.8) Simplify Radicals

474) $\sqrt[3]{216} + 5 - \sqrt[3]{18}$

A) $11 - 2\sqrt[3]{9}$ B) $11\sqrt[3]{18}$ C) $\sqrt[3]{216} + 5 - \sqrt[3]{18}$ D) $11 - \sqrt[3]{18}$

Objective: (0.8) Simplify Radicals

475) $\sqrt{5x^2} - \sqrt[3]{192} + \sqrt{405x^2}$

A) $10x\sqrt{5} - 4\sqrt{12}$ B) $9x\sqrt{5} - 4\sqrt[3]{3}$ C) $10x\sqrt{5} - 4\sqrt[3]{3}$ D) $10\sqrt{5x^2} - \sqrt[3]{192}$

Objective: (0.8) Simplify Radicals

476) $(\sqrt{3} + \sqrt{z})(\sqrt{3} - \sqrt{z})$

A) $3z$ B) $3 - 2\sqrt{3z}$ C) $3 - z$ D) $3 - 2\sqrt{z}$

Objective: (0.8) Simplify Radicals

477) $\dfrac{\sqrt{56x^5y^6}}{\sqrt{2y^4}}$

A) $4x^2y\sqrt{7x}$ B) $2x^4y^2\sqrt{7xy}$ C) $28xy\sqrt{x}$ D) $2x^2y\sqrt{7x}$

Objective: (0.8) Simplify Radicals

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Solve.

478) When an object is dropped to the ground from a height of h meters, the time it takes for the object to reach the ground is given by the equation $t = \sqrt{\frac{h}{4.9}}$, where t is measured in seconds. If an object falls 78.4 meters before it hits the ground, find the time it took for the object to fall.

A) 7 seconds B) 16 seconds C) 5 seconds D) 4 seconds

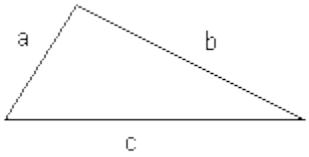
Objective: (0.8) Simplify Radicals

479) If the three lengths of the sides of a triangle are known, Heron's formula can be used to find its area. If a, b, and c are the three lengths of the sides, Heron's formula for area is:

$A = \sqrt{s(s - a)(s - b)(s - c)}$

where s is half the perimeter of the triangle, or $s = \frac{1}{2}(a + b + c)$.

Use this formula to find the area of the triangle if a = 8 cm, b = 10 cm and c = 16 cm.



A) $3\sqrt{7}$ sq. cm B) $24\sqrt{663}$ sq. cm C) $3\sqrt{238}$ sq. cm D) $3\sqrt{119}$ sq. cm

Objective: (0.8) Simplify Radicals

Solve the problem.

480) A formula used to determine the velocity v in feet per second of an object (neglecting air resistance) after it has fallen a certain height is $v = \sqrt{2gh}$, where g is the acceleration due to gravity and h is the height the object has fallen. If the acceleration g due to gravity on Earth is approximately 32 feet per second, find the velocity of a bowling ball after it has fallen 20 feet. (Round to the nearest tenth.)

A) 25.3 ft per sec B) 35.8 ft per sec C) 6.3 ft per sec D) 1,280 ft per sec

Objective: (0.8) Simplify Radicals

481) Police use the formula $s = \sqrt{30fd}$ to estimate the speed s of a car in miles per hour, where d is the distance in feet that the car skidded and f is the coefficient of friction. If the coefficient of friction on a certain gravel road is 0.24 and a car skidded 310 feet, find the speed of the car, to the nearest mile per hour.

A) 259 mph B) 96 mph C) 2,232 mph D) 47 mph

Objective: (0.8) Simplify Radicals

482) The formula $v = \sqrt{2.5r}$ can be used to estimate the maximum safe velocity v, in miles per hour, at which a car can travel along a curved road with a radius of curvature r, in feet. To the nearest whole number, find the maximum safe speed for a curve in a road with a radius of curvature of 350 feet.

A) 12 mph B) 19 mph C) 30 mph D) 47 mph

Objective: (0.8) Simplify Radicals

483) The maximum distance d in kilometers that you can see from a height h in meters is given by the formula $d = 3.5\sqrt{h}$. How far can you see from the top of a 419–meter building? (Round to the nearest tenth of a kilometer.)

A) 71.6 km B) 38.3 km C) 783.9 km D) 20.5 km

Objective: (0.8) Simplify Radicals

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Simplify the expression. Assume that all variables are positive when they appear.

484) $\frac{1}{\sqrt{2}}$

A) $\frac{\sqrt{2}}{2}$ B) $\sqrt{2}$ C) 2 D) $2\sqrt{2}$

Objective: (0.8) Rationalize Denominators

485) $\frac{7}{\sqrt{3}}$

A) 16 B) $\frac{7\sqrt{3}}{3}$ C) $7\sqrt{3}$ D) $\frac{49\sqrt{3}}{3}$

Objective: (0.8) Rationalize Denominators

486) $\frac{9}{\sqrt{19}}$

A) $\frac{9\sqrt{19}}{19}$ B) $\frac{81\sqrt{19}}{19}$ C) 370 D) $9\sqrt{19}$

Objective: (0.8) Rationalize Denominators

487) $\frac{\sqrt{64}}{\sqrt{3}}$

A) $\frac{8\sqrt{3}}{3}$ B) $\frac{64\sqrt{3}}{3}$ C) 17 D) $8\sqrt{3}$

Objective: (0.8) Rationalize Denominators

488) $\frac{-5}{\sqrt{12}}$

A) $-\frac{5\sqrt{3}}{6}$ B) $-\frac{5\sqrt{3}}{3}$ C) $-5\sqrt{3}$ D) -12

Objective: (0.8) Rationalize Denominators

489) $\frac{4}{7-\sqrt{2}}$

A) $\frac{28-4\sqrt{2}}{47}$ B) $\frac{28+4\sqrt{2}}{47}$ C) $\frac{28+4\sqrt{2}}{-5}$ D) $\frac{4}{7}-\frac{4}{\sqrt{2}}$

Objective: (0.8) Rationalize Denominators

490) $\frac{\sqrt{3}}{\sqrt{2}+9}$

A) $\frac{\sqrt{6}-9\sqrt{3}}{-79}$ B) $\frac{3\sqrt{6}+2\sqrt{3}}{18}$ C) $\frac{\sqrt{6}-9\sqrt{3}}{11}$ D) $\frac{\sqrt{6}+9\sqrt{3}}{-79}$

Objective: (0.8) Rationalize Denominators

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491) $\frac{\sqrt{5}}{5\sqrt{3}-\sqrt{5}}$

A) $\frac{\sqrt{15}+1}{16}$ B) $\frac{\sqrt{15}-1}{14}$ C) $\frac{\sqrt{15}+1}{14}$ D) $\frac{\sqrt{3}+1}{14}$

Objective: (0.8) Rationalize Denominators

492) $\frac{1-\sqrt{10}}{1+\sqrt{10}}$

A) $\frac{-9-2\sqrt{10}}{11}$ B) 1 C) $\frac{11-2\sqrt{10}}{-9}$ D) $\frac{11+2\sqrt{10}}{-9}$

Objective: (0.8) Rationalize Denominators

493) $\frac{9\sqrt{11}+\sqrt{22}}{\sqrt{22}+\sqrt{11}}$

A) $9\sqrt{2}-7$ B) $10\sqrt{2}+11$ C) $8\sqrt{2}-7$ D) $9\sqrt{2}-11$

Objective: (0.8) Rationalize Denominators

494) $\frac{7}{\sqrt[3]{2}}$

A) $\frac{7\sqrt[3]{2}}{2}$ B) $7\sqrt[3]{4}$ C) $7\sqrt[3]{2}$ D) $\frac{7\sqrt[3]{4}}{2}$

Objective: (0.8) Rationalize Denominators

495) $\frac{-13}{\sqrt[3]{9}}$

A) $\frac{-13\sqrt[3]{3}}{3}$ B) $-13\sqrt[3]{3}$ C) $\frac{-13\sqrt[3]{9}}{3}$ D) $-13\sqrt[3]{9}$

Objective: (0.8) Rationalize Denominators

496) $\frac{\sqrt{x}-\sqrt{y}}{\sqrt{6x}+\sqrt{5y}}$

A) $\frac{x\sqrt{6}-\sqrt{5xy}-\sqrt{6xy}+y\sqrt{5}}{6x+5y}$ B) $\frac{\sqrt{6x}-\sqrt{11xy}+\sqrt{5y}}{6x-5y}$

C) $\frac{x\sqrt{6}-\sqrt{5xy}-\sqrt{6xy}+y\sqrt{5}}{6x-5y}$ D) $\frac{\sqrt{6x}-\sqrt{11xy}+\sqrt{5y}}{6x+5y}$

Objective: (0.8) Rationalize Denominators

497) $\frac{4}{\sqrt{x+h}-\sqrt{x}}$

A) $\frac{4(\sqrt{x+h}+\sqrt{x})}{h}$ B) $\frac{4\sqrt{h}}{h}$ C) $\frac{4\sqrt{x+h}+\sqrt{x}}{h}$ D) $\frac{4(\sqrt{x+h}-\sqrt{x})}{h}$

Objective: (0.8) Rationalize Denominators

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Simplify the expression.

498) $-32^{1/5}$

A) -8 B) -2 C) 16 D) 32

Objective: (0.8) Simplify Expressions with Rational Exponents

499) $\left(\frac{1}{36}\right)^{1/2}$

A) 6 B) $\frac{-1}{6}$ C) $\frac{1}{6}$ D) -6

Objective: (0.8) Simplify Expressions with Rational Exponents

500) $27^{4/3}$

A) 81 B) 729 C) 2,187 D) 243

Objective: (0.8) Simplify Expressions with Rational Exponents

501) $16^{5/4}$

A) 512 B) 128 C) 256 D) 32

Objective: (0.8) Simplify Expressions with Rational Exponents

502) $243^{4/5}$

A) 81 B) 2,187 C) 6,561 D) 19,683

Objective: (0.8) Simplify Expressions with Rational Exponents

503) $\left(\frac{8}{64}\right)^{2/3}$

A) $\frac{1}{2}$ B) $\frac{1}{6}$ C) $\frac{1}{4}$ D) $-\frac{1}{4}$

Objective: (0.8) Simplify Expressions with Rational Exponents

504) $(-27)^{4/3}$

A) 81 B) -81 C) 729 D) not a real number

Objective: (0.8) Simplify Expressions with Rational Exponents

505) $81^{-3/2}$

A) $-\frac{1}{729}$ B) -729 C) $\frac{1}{729}$ D) 729

Objective: (0.8) Simplify Expressions with Rational Exponents

506) $8^{-4/3}$

A) 16 B) $\frac{1}{16}$ C) $-\frac{1}{16}$ D) not a real number

Objective: (0.8) Simplify Expressions with Rational Exponents

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507) $16^{-5/4}$

A) $-\frac{1}{32}$ B) $\frac{1}{32}$ C) 32 D) not a real number

Objective: (0.8) Simplify Expressions with Rational Exponents

508) $32^{-4/5}$

A) not a real number B) 16 C) $-\frac{1}{16}$ D) $\frac{1}{16}$

Objective: (0.8) Simplify Expressions with Rational Exponents

509) $-27^{-4/3}$

A) $\frac{1}{81}$ B) $-\frac{1}{81}$ C) 81 D) not a real number

Objective: (0.8) Simplify Expressions with Rational Exponents

510) $-243^{-4/5}$

A) 81 B) $-\frac{1}{81}$ C) $\frac{1}{81}$ D) not a real number

Objective: (0.8) Simplify Expressions with Rational Exponents

511) $1{,}681^{1/2}$

A) 20.5 B) 41 C) 164 D) 82

Objective: (0.8) Simplify Expressions with Rational Exponents

512) $343^{1/3}$

A) 2,401 B) 7,203 C) 21 D) 7

Objective: (0.8) Simplify Expressions with Rational Exponents

513) $4{,}096^{1/4}$

A) 256 B) 8 C) 32,768 D) 32

Objective: (0.8) Simplify Expressions with Rational Exponents

514) $16^{7/4}$

A) 131 B) 16,384 C) $\sqrt[7]{8}$ D) 128

Objective: (0.8) Simplify Expressions with Rational Exponents

515) $27^{4/3}$

A) 2,187 B) 243 C) 81 D) 729

Objective: (0.8) Simplify Expressions with Rational Exponents

516) $625^{5/4}$

A) 3,125 B) 78,125 C) 390,625 D) 1,953,125

Objective: (0.8) Simplify Expressions with Rational Exponents

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517) $25^{-1/2}$

A) 5 B) –5 C) $\frac{1}{5}$ D) $-\frac{1}{5}$

Objective: (0.8) Simplify Expressions with Rational Exponents

518) $27^{-1/3}$

A) $\frac{1}{3}$ B) –3 C) $\frac{1}{9}$ D) 3

Objective: (0.8) Simplify Expressions with Rational Exponents

519) $64^{-4/3}$

A) 256 B) –256 C) $-\frac{1}{256}$ D) $\frac{1}{256}$

Objective: (0.8) Simplify Expressions with Rational Exponents

520) $16^{-5/4}$

A) $-\frac{1}{32}$ B) –32 C) –1,024 D) $\frac{1}{32}$

Objective: (0.8) Simplify Expressions with Rational Exponents

521) $\left(\frac{16}{9}\right)^{1/2}$

A) $\frac{3}{4}$ B) $-\frac{3}{4}$ C) $-\frac{4}{3}$ D) $\frac{4}{3}$

Objective: (0.8) Simplify Expressions with Rational Exponents

522) $\left(\frac{9}{49}\right)^{-1/2}$

A) $\frac{3}{7}$ B) $\frac{9}{98}$ C) $\frac{7}{3}$ D) not a real number

Objective: (0.8) Simplify Expressions with Rational Exponents

523) $\left(-\frac{125}{8}\right)^{-4/3}$

A) $\frac{16}{625}$ B) $-\frac{625}{16}$ C) $\frac{625}{16}$ D) not a real number

Objective: (0.8) Simplify Expressions with Rational Exponents

Simplify the expression. Express the answer so that only positive exponents occur. Assume that all variables are positive.

524) $x^{7/8} \cdot x^{1/8}$

A) x B) $x^{7/8}$ C) $\frac{1}{x}$ D) $x^{7/64}$

Objective: (0.8) Simplify Expressions with Rational Exponents

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525) $x^{-2/5} \cdot x^{3/5}$

A) $x^{6/5}$ B) $x^{1/5}$ C) $x^{-1/5}$ D) $x^{5/6}$

Objective: (0.8) Simplify Expressions with Rational Exponents

526) $(x^{14}y^{7})^{1/7}$

A) $x^{2}|y|$ B) x^{2} C) $x^{14}y$ D) $x^{2}y$

Objective: (0.8) Simplify Expressions with Rational Exponents

527) $(27x^{6}y^{6})^{1/3}$

A) $3x^{2}y^{2}$ B) $x^{2}y^{2}$ C) $3x^{6}y^{2}$ D) $3x^{2}y$

Objective: (0.8) Simplify Expressions with Rational Exponents

528) $(6x^{2/3})(5x^{3/4})$

A) $30x^{5/12}$ B) $30x^{17/12}$ C) $30x^{17/7}$ D) $30x^{2/3}$

Objective: (0.8) Simplify Expressions with Rational Exponents

529) $(x^{5}y^{2})^{4/3}$

A) $x^{8/3}y^{20/3}$ B) $x^{20/3}y^{8/3}$ C) $x^{19/3}y^{10/3}$ D) $x^{15/4}y^{3/2}$

Objective: (0.8) Simplify Expressions with Rational Exponents

530) $(16x^{4}y^{-12})^{7/2}$

A) $\frac{16{,}384}{x^{14}y^{42}}$ B) $\frac{16x^{14}}{y^{42}}$ C) $16{,}384x^{14}y^{42}$ D) $\frac{16{,}384x^{14}}{y^{42}}$

Objective: (0.8) Simplify Expressions with Rational Exponents

531) $(9x^{1/7} \cdot y^{1/7})^{2}$

A) $81x^{1/49}y^{1/49}$ B) $81x^{1/14}y^{1/14}$ C) $81x^{2}y^{2}$ D) $81x^{2/7}y^{2/7}$

Objective: (0.8) Simplify Expressions with Rational Exponents

532) $\frac{x^{5/3} \cdot x^{3/4}}{x^{6/5}}$

A) $\frac{1}{x^{217/60}}$ B) $\frac{1}{x^{73/60}}$ C) $x^{73/60}$ D) $x^{217/60}$

Objective: (0.8) Simplify Expressions with Rational Exponents

533) $\frac{(-5x^{6/5})^{2}}{x^{-5/7}}$

A) $25x^{59/35}$ B) $-5x^{59/35}$ C) $-5x^{109/35}$ D) $25x^{109/35}$

Objective: (0.8) Simplify Expressions with Rational Exponents

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An expression that occurs in calculus is given. Write the expression as a single quotient in which only positive exponents and/or radicals appear.

534) $\dfrac{(49 - x^2)^{1/2} + 3x^2(49 - x^2)^{-1/2}}{49 - x^2}$

A) $\dfrac{3x^2}{(49 - x^2)^{3/2}}$ B) $\dfrac{49 - 4x^2}{(49 - x^2)^{3/2}}$ C) $\dfrac{49 + 2x^2}{(49 - x^2)^{3/2}}$ D) $\dfrac{3x^2}{\sqrt{49 - x^2}}$

Objective: (0.8) Simplify Expressions with Rational Exponents

535) $6x^{3/2}(x^3 + x^2) - 8x^{5/2} - 8x^{3/2}$

A) $6x^{3/2}(x^3 - 1) + 6x^3 - 2x^{3/2}(x - 1)$ B) $6x^{3/2}(x + 1)(3x^2 - 4)$

C) $x^{3/2}(x - 1)[6(x^2 - 1) - 2] + 6x^3$ D) $2x^{3/2}(x + 1)(3x^2 - 4)$

Objective: (0.8) Simplify Expressions with Rational Exponents

536) $(x^2 - 1)^{1/2} \cdot \dfrac{3}{2}(2x + 5)^{1/2} \cdot 2 + (2x + 5)^{3/2} \cdot \dfrac{1}{2}(x^2 - 1)^{-1/2} \cdot 2x$

A) $\dfrac{(2x + 5)^{1/2}(5x^2 + 5x - 3)}{(x^2 - 1)^{1/2}}$ B) $\dfrac{(2x + 5)^{1/2}(5x^2 + 5x - 3)}{(x^2 - 1)^{-1/2}}$

C) $(x^2 - 1)^{1/2}(2x + 5)^{-1/2}(5x^2 + 5x - 3)$ D) $(x^2 - 1)^{1/2}(2x + 5)^{1/2}(5x^2 + 5x - 3)$

Objective: (0.8) Simplify Expressions with Rational Exponents

537) $\dfrac{(x^2 + 2)^{1/2} \cdot \dfrac{3}{2}(2x + 1)^{1/2} \cdot 2 - (2x + 1)^{3/2} \cdot \dfrac{1}{2}(x^2 + 2)^{-1/2} \cdot 2x}{x^2 + 2}$

A) $\dfrac{(2x + 1)^{1/2}(x^2 - x + 6)}{(x^2 + 2)^{3/2}}$ B) $\dfrac{(2x + 1)^{1/2}(x^2 - x + 6)}{(x^2 + 2)^{-3/2}}$

C) $(x^2 + 2)^{3/2}(2x + 1)^{-1/2}(x^2 - x + 6)$ D) $(x^2 + 2)^{3/2}(2x + 1)^{1/2}(x^2 - x + 6)$

Objective: (0.8) Simplify Expressions with Rational Exponents

Factor the expression. Express your answer so that only positive exponents occur.

538) $x^{4/5} + 3x^{3/5}$

A) $x^{1/5}(x^{1/5} + 3)$ B) $x^{3/5}(x^{1/5} + 3)$ C) $x^{3/5}(x^{-1/5} + 3)$ D) $x^{1/5}(x^{4/5} + 3)$

Objective: (0.8) Simplify Expressions with Rational Exponents

539) $11x^{1/7} - 13x^{-2/7}$

A) $x^{-2/7}(11x^{3/7} - 13x)$ B) $x^{1/3}(11 - 13x^{3/13})$

C) $x^{-2/7}(11x^{3/7} - 13)$ D) $x^{1/7}(11x^{3/7} - 13x^{3/13})$

Objective: (0.8) Simplify Expressions with Rational Exponents

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540) $x^{-4/7} + x^{-5/7}$

A) $x^{-5/7}(x^{1/7} + x)$ B) $x^{-5/7}(x^{1/7} - 1)$ C) $x^{-5/7}(x^{1/7} + 1)$ D) $x^{-5/7}(x^{1/7})$

Objective: (0.8) Simplify Expressions with Rational Exponents

541) $x^{1/2} - x^{-1/4}$

A) $x^{-1/4}(x^{3/4} + 1)$ B) $x^{-1/4}(x^{3/4})$ C) $x^{-1/4}(x^{3/4} - 1)$ D) $x^{-1/4}(x^{3/4} - x)$

Objective: (0.8) Simplify Expressions with Rational Exponents

542) $(x + 9)^{-3/5} + (x + 9)^{-1/5} + (x + 9)^{1/5}$

A) $(x + 9)^{-3/5}[1 + (x + 9)^{1/5} + (x + 9)^{3/5}]$ B) $(x + 9)^{-3/5}[1 + (x + 9)^{-2/5} + (x + 9)^{-4/5}]$

C) $(x + 9)^{-3/5}[1 + (x + 9)^{4/5} + (x + 9)^{6/5}]$ D) $(x + 9)^{-3/5}[1 + (x + 9)^{2/5} + (x + 9)^{4/5}]$

Objective: (0.8) Simplify Expressions with Rational Exponents

543) $(5m + 8)^{-6/5} + (5m + 8)^{1/5} + (5m + 8)^{7/5}$

A) $(5m + 8)^{-6/5}[1 + (5m + 8)^{8/5} + (5m + 8)^{11/5}]$ B) $(5m + 8)^{-6/5}[1 + (5m + 8)^{7/5} - (5m + 8)^{13/5}]$

C) $(5m + 8)^{-6/5}[1 + (5m + 8)^{7/5} + (5m + 8)^{13/5}]$ D) $(5m + 8)^{-6/5}[1 + (5m + 8)^{-7/5} + (5m + 8)^{-13/5}]$

Objective: (0.8) Simplify Expressions with Rational Exponents

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