College Algebra 5th edition Trigsted Test Bank

SKU: 9780138208387-TEST-BANK

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

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

1) $B = \left\{13, \sqrt{8}, -17, 0, \frac{5}{6}, -\frac{6}{5}, 5.7\right\}$

Integers

A) $\{13, 0, \sqrt{8}\}$ B) $\{13, 0\}$ C) $\{13, -17, 0\}$ D) $\{13, -17\}$

Answer: C

2) $B = \left\{5, \sqrt{7}, -13, 0, \frac{1}{5}, -5, 7.8\right\}$

Natural numbers

A) $\{5, 0, -5\}$ B) $\{5\}$ C) $\{5, 0\}$ D) $\{-13, 0, 5\}$

Answer: B

3) $B = \left\{6, \sqrt{7}, -17, 0, \frac{0}{3}\right\}$

Real numbers

A) $\{6, -17, 0\}$ B) $\{6, -17,\}$ C) $\left\{6, -17, 0, \frac{0}{3}\right\}$ D) $\left\{6, \sqrt{7}, -17, 0, \frac{0}{3}\right\}$

Answer: D

4) $B = \left\{7, \sqrt{6}, -8, 0, \frac{0}{8}, 0.3\right\}$

Rational numbers

A) $\left\{7, -8, 0, \frac{0}{8}, 0.3\right\}$ B) $\{\sqrt{6}\}$ C) $\{7, 0\}$ D) $\left\{\sqrt{6}, \frac{0}{8}, 0.3\right\}$

Answer: A

5) $B = \left\{19, \sqrt{7}, -15, 0, \frac{0}{2}, 0.51\right\}$

Irrational numbers

A) $\{\sqrt{7}, 0.51\}$ B) $\left\{\sqrt{7}, \frac{0}{2}\right\}$ C) $\{\sqrt{7}\}$ D) $\left\{\sqrt{7}, \frac{0}{2}, 0.51\right\}$

Answer: C

6) $B = \{16, \sqrt{8}, -24, 0, \frac{7}{8}, -\frac{8}{7}, 8.8, 25\pi, 0.258258258...\}$

Integers

A) $\{16, -24\}$ B) $\{16, 0, \sqrt{8}\}$ C) $\{16, 0\}$ D) $\{16, -24, 0\}$

Answer: D

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7) B = $\{5, \sqrt{5}, -18, 0, \frac{3}{8}, -\frac{8}{3}, 5.4, 5\pi, 0.525525525...\}$

Natural numbers

A) $\left\{5, 0, -\frac{8}{3}\right\}$ B) {5, 0} C) {5} D) {- 18, 0, 5}

Answer: C

8) B = $\{6, \sqrt{8}, -24, 0, \frac{0}{9}, \sqrt{4}, 0.84, -8\pi, 0.444...\}$

Rational numbers

A) $\left\{6, -24, 0, \frac{0}{9}, 0.84, 0.444...\right\}$ B) $\left\{6, -24, 0, \frac{0}{9}, \sqrt{4}, 0.84, -8\pi, 0.444...\right\}$

C) $\left\{6, -24, 0, \frac{0}{9}, \sqrt{4}, 0.84, 0.444...\right\}$ D) $\left\{6, -24, 0, \frac{0}{9}, 0.84\right\}$

Answer: C

9) B = $\{20, \sqrt{6}, -13, 0, \frac{0}{6}, , 0.09, -6\pi, 0.161616...\}$

Irrational numbers

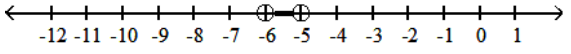
A) $\{\sqrt{6}\}$ B) $\{\sqrt{6}, -6\pi, 0.161616...\}$

C) $\left\{\sqrt{6}, \frac{0}{6}, -6\pi\right\}$ D) $\{\sqrt{6}, -6\pi\}$

Answer: D

Given the set sketched on the number line, identify the type of interval (open, closed, half-open, open infinite, closed infinite), write the set using set-builder notation, and write the set using interval notation.

10)

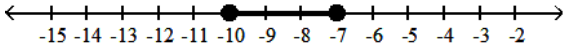


A) half-open interval; $\{x \mid -6 \le x < -5\}$; $[-6, -5)$ B) open interval; $\{x \mid -6 < x < -5\}$; $(-6, -5)$

C) closed interval; $\{x \mid -6 \le x \le -5\}$; $[-6, -5]$ D) half-open interval; $\{x \mid -6 < x \le -5\}$; $(-6, -5]$

Answer: B

11)

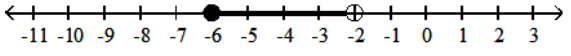


A) half-open interval; $\{x \mid -10 \le x < -7\}$; $[-10, -7)$ B) open interval; $\{x \mid -10 < x < -7\}$; $(-10, -7)$

C) half-open interval; $\{x \mid -10 < x \le -7\}$; $(-10, -7]$ D) closed interval; $\{x \mid -10 \le x \le -7\}$; $[-10, -7]$

Answer: D

12)



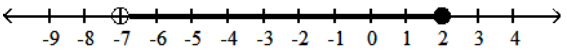
A) half-open interval; $\{x \mid -6 \le x < -2\}$; $[-6, -2)$ B) closed interval; $\{x \mid -6 \le x \le -2\}$; $[-6, -2]$

C) half-open interval; $\{x \mid -6 < x \le -2\}$; $(-6, -2]$ D) open interval; $\{x \mid -6 < x < -2\}$; $(-6, -2)$

Answer: A

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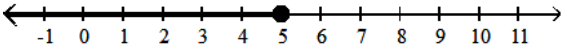
13)



A) half- open interval; {x | - 7 ≤ x < }; [- 7,)
B) closed interval; {x | - 7 ≤ x ≤ }; [- 7,]
C) half- open interval; {x | - 7 < x ≤ }; (- 7,]
D) open interval; {x | - 7 < x < }; (- 7,)

Answer: C

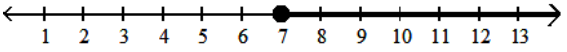
14)



A) closed infinite interval; {x | x ≥ 5}; [5, ∞)
B) closed infinite interval; {x | x ≤ 5}; (- ∞, 5]
C) open infinite interval; {x | x > 5}; (5, ∞)
D) open infinite interval; {x | x < 5}; (- ∞, 5)

Answer: B

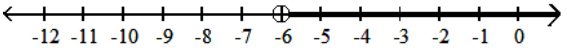
15)



A) open infinite interval; {x | x < }; (- ∞,)
B) closed infinite interval; {x | x ≥ }; [, ∞)
C) open infinite interval; {x | x > }; (, ∞)
D) closed infinite interval; {x | x ≤ }; (- ∞,]

Answer: B

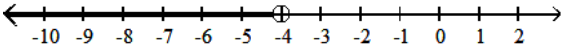
16)



A) closed infinite interval; {x | x ≤ - 6}; (- ∞, - 6]
B) open infinite interval; {x | x > - 6}; (- 6, ∞)
C) closed infinite interval; {x | x ≥ - 6}; [- 6, ∞)
D) open infinite interval; {x | x < - 6}; (- ∞, - 6)

Answer: B

17)



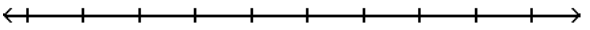
A) open infinite interval; {x | x < - 4}; (- ∞, - 4)
B) closed infinite interval; {x | x ≤ - 4}; (- ∞, - 4]
C) open infinite interval; {x | x > - 4}; (- 4, ∞)
D) closed infinite interval; {x | x ≥ - 4}; [- 4, ∞)

Answer: A

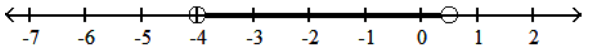
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Write the interval in set-builder notation and graph the set on a number line.

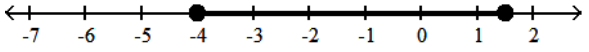
18) $\left[-4, \frac{1}{2}\right]$



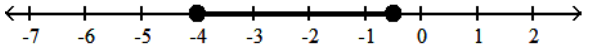
A) $\left\{x \middle| -4 < x < \frac{1}{2}\right\}$



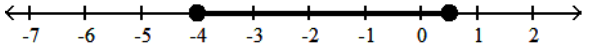
B) $\left\{x \middle| -4 \leq x \leq \frac{1}{2}\right\}$



C) $\left\{x \middle| -4 \leq x \leq \frac{1}{2}\right\}$

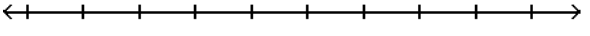


D) $\left\{x \middle| -4 \leq x \leq \frac{1}{2}\right\}$

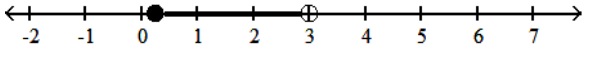


Answer: D

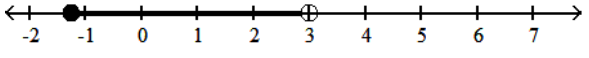
19) $\left[-\frac{1}{4}, 3\right)$



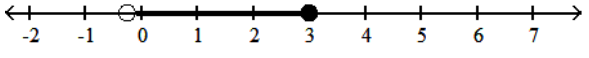
A) $\left\{x \middle| -\frac{1}{4} \leq x < 3\right\}$



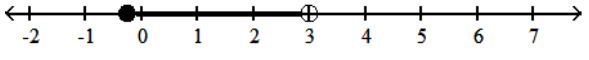
B) $\left\{x \middle| -\frac{1}{4} \leq x < 3\right\}$



C) $\left\{x \middle| -\frac{1}{4} < x \leq 3\right\}$



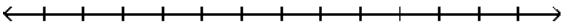
D) $\left\{x \middle| -\frac{1}{4} \leq x < 3\right\}$



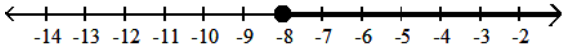
Answer: D

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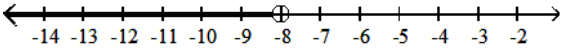
20) $(-\infty, -8)$



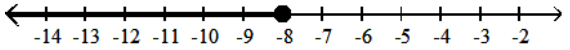
A) $\{x \mid x \geq -8\}$



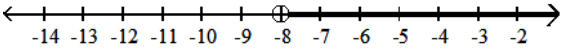
B) $\{x \mid x < -8\}$



C) $\{x \mid x \leq -8\}$

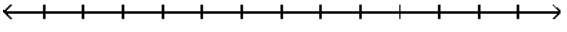


D) $\{x \mid x > -8\}$

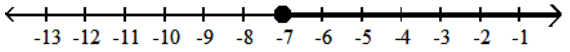


Answer: B

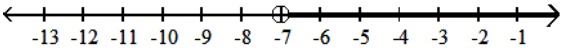
21) $[-7, \infty)$



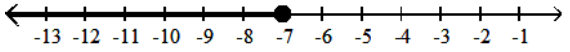
A) $\{x \mid x \geq -7\}$



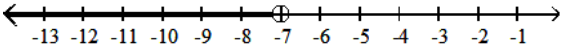
B) $\{x \mid x > -7\}$



C) $\{x \mid x \leq -7\}$



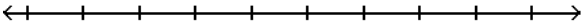
D) $\{x \mid x < -7\}$



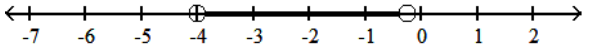
Answer: A

Write the given set in interval notation and graph the set on a number line.

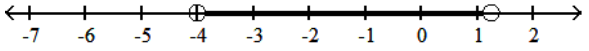
22) $\left\{x \middle| -4 < x < \frac{1}{4}\right\}$



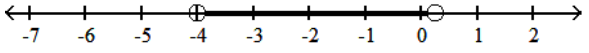
A) $\left(-4, \frac{1}{4}\right)$



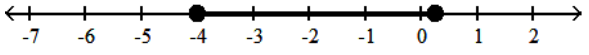
B) $\left(-4, \frac{1}{4}\right)$



C) $\left(-4, \frac{1}{4}\right)$



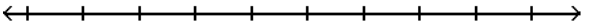
D) $\left[-4, \frac{1}{4}\right]$



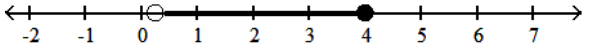
Answer: C

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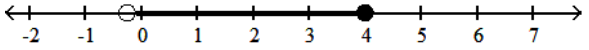
23) $\left\{x \left| -\frac{1}{4} < x \le 4 \right.\right\}$



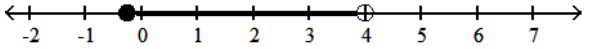
A) $\left(-\frac{1}{4}, 4\right]$



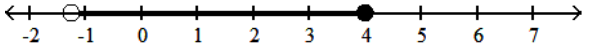
B) $\left(-\frac{1}{4}, 4\right]$



C) $\left[-\frac{1}{4}, 4\right)$

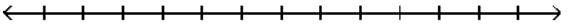


D) $\left[-\frac{1}{4}, 4\right]$

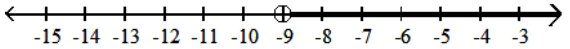


Answer: B

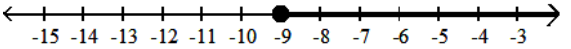
24) $\{x \mid x \le -9\}$



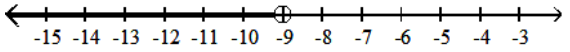
A) $(-9, \infty)$



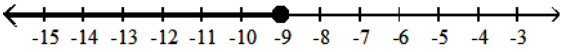
B) $[-9, \infty)$



C) $(-\infty, -9)$

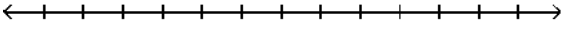


D) $(-\infty, -9]$

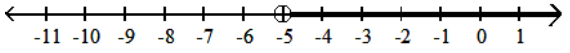


Answer: D

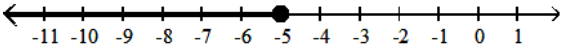
25) $\{x \mid x < -5\}$



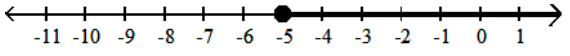
A) $(-5, \infty)$



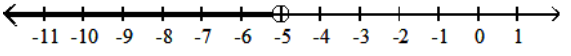
B) $(-\infty, -5]$



C) $[-5, \infty)$



D) $(-\infty, -5)$



Answer: D

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Find the indicated set given A = {-3, 0, 2, 5, 6, 11, 16, 23}, B = {-3, 0, 16, 23}, and C = {-7, -4, 11, 16, 23}.

26) $A \cap B$

A) {0, 2, 5, 6, 11, 23} B) {-3, 0, 16, 23} C) {5, 11} D) {-3, 0, 2, 5, 6, 16}

Answer: B

27) $C \cup B$

A) {16, 23} B) {-7, -4, -3, 0, 16, 23}

C) {-7, -4, -3, 0, 11, 16, 16, 23, 23} D) {-7, -4, -3, 0, 11, 16, 23}

Answer: D

28) $B \cap C$

A) {11, 16, 23} B) {-7, -4, -3, 0, 11, 16, 23}

C) {16, 23} D) {-4, 16, 23}

Answer: C

Find the union or intersection as indicated.

29) Find $A \cap B$ if $A = \{x \mid x \geq -2\}$ and $B = \{x \mid x < 7\}$

A) $\emptyset$ B) $\{x \mid x \geq -2\}$ C) $\{x \mid x < 7\}$ D) $\{x \mid -2 \leq x < 7\}$

Answer: D

30) Find $A \cup B$ if $A = \{x \mid x < -3\}$ and $B = \{x \mid x \geq 5\}$

A) $\emptyset$ B) $\{x \mid -3 < x \leq 5\}$ C) $\{x \mid x < -3 \cup x \geq 5\}$ D) $\{x \mid x > -3\}$

Answer: C

Find the intersection of the given intervals.

31) $(-\infty, \infty) \cap [-1, \infty)$

A) $\emptyset$ B) $(-\infty, -1]$ C) $(-\infty, \infty)$ D) $[-1, \infty)$

Answer: D

32) $[\ , \infty) \cap (-\infty, \ ]$

A) $[\ , \infty)$ B) $[\ , \ ]$ C) $(-\infty, \ ]$ D) $(-\infty, \infty)$

Answer: B

33) $(-2, 10] \cap (-7, 4]$

A) $(-2, 4)$ B) $[-2, 4]$ C) $[-7, 10]$ D) $(-7, -2]$

Answer: B

34) $((\infty, -3) \cup (-3, \infty)) \cap (\infty, 7]$

A) $(\infty, -3)$ B) $(-3, 7]$ C) $(\infty, -3) \cup (-3, 7]$ D) $(\infty, 7]$

Answer: C

35) $(\infty, 12] \cap [-6, \infty) \cap (\infty, 6)$

A) $[-6, \ )$ B) $[-6, \ ) \cup (\ , 12]$ C) $[-6, 12]$ D) $(6, 12]$

Answer: A

Evaluate the absolute value expression.

36) $|-6 - 5|$

A) 11 B) -11 C) -1 D) 1

Answer: A

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37) $|-4|+|8|$

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

Answer: A

38) $\frac{|6|}{6}+\frac{|-4|}{-4}$

A) 1 B) 0 C) - 1 D) 2

Answer: B

39) $4|8|+5|-9|$

A) 13 B) - 13 C) 77 D) - 77

Answer: C

40) $|6 \cdot 6 - 7 \cdot 8|$

A) 92 B) - 92 C) - 20 D) 20

Answer: D

41) $|2 \cdot -10 + 4 \cdot -3|$

A) 38 B) 32 C) 8 D) 22

Answer: B

Find the distance between the given two numbers using absolute value.

42) and - 5

A) 7 B) - 7 C) 6 D) 8

Answer: A

Multiply and simplify. Assume variables do not cause any denominators to equal 0.

43) $\frac{7}{8} \cdot \frac{1}{2}$

A) $\frac{4}{5}$ B) $\frac{7}{16}$ C) $\frac{4}{7}$ D) $\frac{16}{7}$

Answer: B

44) $\frac{3}{7} \cdot \frac{1}{6}$

A) — B) — C) — D) —

Answer: C

45) $\frac{1}{4} \cdot \frac{2}{3}$

A) $\frac{2}{5}$ B) $\frac{1}{6}$ C) $\frac{3}{7}$ D) $\frac{2}{12}$

Answer: B

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46) $\frac{17}{2} \div -\frac{6}{5}$

A) $-\frac{51}{5}$ B) $-\frac{23}{7}$ C) $-\frac{102}{10}$ D) $\frac{5}{6}$

Answer: A

47) $\frac{7}{2} \div -\frac{4}{3}$

A) $-\frac{7}{6}$ B) $-\frac{14}{3}$ C) -11 D) $-\frac{8}{21}$

Answer: B

48) $-\frac{5}{11} \div -\frac{21}{29}$

A) —— B) $-\frac{11}{7}$ C) $\frac{105}{319}$ D) $\frac{231}{145}$

Answer: C

49) $\left(-\frac{5}{11}\right) \cdot \left(-\frac{77}{20}\right)$

A) $\frac{7}{4}$ B) $-\frac{35}{4}$ C) $\frac{4}{7}$ D) $-\frac{7}{4}$

Answer: A

50) $130 \cdot \frac{8}{13}$

A) -2 B) $\frac{1}{80}$ C) 80 D) 104

Answer: C

51) $-45\left(\frac{7}{5}\right)$

A) $-\frac{1}{63}$ B) -35 C) 63 D) -63

Answer: D

52) $-\frac{36p}{25q} \cdot \frac{5p^2}{16q}$

A) $-\frac{9p}{20}$ B) $-\frac{9p}{4}$ C) $-\frac{9p^3}{20q^2}$ D) $-\frac{9p^3}{4q^2}$

Answer: C

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53) $\left(-\frac{9x^4y}{12z}\right)\cdot\left(-\frac{24z}{15x^2}\right)$

A) $\frac{6x^2y}{5}$ B) $\frac{3x^2y}{10}$ C) $\frac{6x^2yz}{5}$ D) $\frac{6x^2z}{5}$

Answer: A

Divide and simplify. Assume variables do not cause any denominators to equal 0.

54) $\frac{6}{7}\div\frac{7}{3}$

A) $\frac{1}{2}$ B) $\frac{49}{18}$ C) $\frac{18}{49}$ D) 2

Answer: C

55) $\frac{40}{3}\div 5$

A) $\frac{200}{3}$ B) $\frac{3}{8}$ C) 8 D) $\frac{8}{3}$

Answer: D

56) $\left(-\frac{5}{13}\right)\div\left(-\frac{35}{26}\right)$

A) $\frac{7}{2}$ B) $\frac{10}{7}$ C) $\frac{175}{338}$ D) $\frac{2}{7}$

Answer: D

57) $\frac{12}{5}\div\frac{36}{20}$

A) $\frac{25}{108}$ B) $\frac{15}{4}$ C) $\frac{3}{4}$ D) $\frac{4}{3}$

Answer: D

58) $\frac{4}{3}\div\frac{x}{6}$

A) $\frac{x}{18}$ B) $\frac{8}{x}$ C) $\frac{2}{9}$ D) $\frac{9}{2}$

Answer: B

59) $\frac{4x}{8}\div\frac{9x}{19}$

A) $\frac{13}{27}$ B) $\frac{9x}{152}$ C) $\frac{19}{18}$ D) $\frac{19x}{18}$

Answer: C

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60) $\frac{10x^2}{33y} \div \frac{15x}{121y}$

A) $\frac{50x^3}{1331y^2}$ B) $\frac{50x}{1331}$ C) $\frac{22x}{9}$ D) $\frac{22x}{9y}$

Answer: C

61) $\frac{25m}{2n} \div 5mn$

A) 5mn B) $\frac{5}{2n^2}$ C) $\frac{125}{2}$ D) $\frac{2}{5}$

Answer: B

Find the LCD of the given fractions by inspection.

62) $\frac{1}{5}$ and $\frac{16}{14}$

A) 19 B) 70 C) 5 D) 14

Answer: B

63) $\frac{11}{4}$ and $\frac{4}{20}$

A) 4 B) 20 C) 80 D) 24

Answer: B

64) $\frac{7}{10}$ and $\frac{5}{35}$

A) 5 B) 70 C) 350 D) 45

Answer: B

Find the LCD of the given fractions by prime factorization.

65) $\frac{7}{15}$ and $\frac{5}{50}$

A) 750 B) - 150 C) 5 D) 150

Answer: D

66) $\frac{7}{56}$ and $\frac{2}{48}$

A) 672 B) 336 C) 112 D) 168

Answer: B

67) $\frac{7}{30}, \frac{1}{18}$ and $\frac{4}{15}$

A) 45 B) 18 C) 90 D) 30

Answer: C

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Add or subtract as indicated. Simplify if necessary.

68) $\frac{2}{5} + \frac{3}{10}$

A) $\frac{1}{3}$ B) $\frac{7}{10}$ C) $\frac{18}{25}$ D) $\frac{1}{2}$

Answer: B

69) $\frac{5}{7} - \frac{1}{6}$

A) $\frac{23}{42}$ B) $\frac{2}{21}$ C) $\frac{1}{6}$ D) $\frac{4}{7}$

Answer: A

70) $\frac{9}{7} - 4$

A) $\frac{5}{7}$ B) $-\frac{36}{7}$ C) $-\frac{37}{7}$ D) $-\frac{19}{7}$

Answer: D

71) $-\frac{1}{25} - \frac{1}{20}$

A) $-\frac{2}{25}$ B) $\frac{1}{50}$ C) $-\frac{9}{100}$ D) $-\frac{1}{20}$

Answer: C

72) $-\frac{4}{5} + \frac{7}{10}$

A) $\frac{1}{10}$ B) $-\frac{1}{10}$ C) $-\frac{3}{10}$ D) $-\frac{11}{10}$

Answer: B

73) $\frac{2}{8} + \frac{6}{14} + \frac{9}{15}$

A) $\frac{179}{140}$ B) $\frac{17}{140}$ C) $\frac{221}{420}$ D) $\frac{179}{70}$

Answer: A

74) $\frac{2}{9} + \frac{5}{14} - \frac{4}{7}$

A) $\frac{1}{126}$ B) $\frac{1}{10}$ C) $\frac{145}{126}$ D) $\frac{1}{294}$

Answer: A

Use the commutative property of addition to write an equivalent algebraic expression.

75) $x + 3$

A) $x + 3$ B) $3 + x$ C) $x3$ D) $3x$

Answer: B

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76) $2x + 6y$

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

Answer: A

Use the commutative property of multiplication to write an equivalent algebraic expression.

77) $8 \cdot x$

A) $x + 8$ B) $\frac{8}{x}$ C) $8x$ D) $x \cdot 8$

Answer: D

78) $2(x + 8)$

A) $(8 + x)2$ B) $(x + 2)8$ C) $(x + 8)2$ D) $2(8 + x)$

Answer: C

Use the associative property of addition to write an equivalent algebraic expression.

79) $7 + (3 + x)$

A) $(7 + 3) + x$ B) $7(3 + x)$ C) $(7 + 3)x$ D) $3(7 + x)$

Answer: A

80) $(yz + a) + x$

A) $y(z + a) + x$ B) $y + (za + x)$ C) $yz + (a + x)$ D) $x + (yz + a)$

Answer: C

Use the associative property of multiplication to write an equivalent algebraic expression.

81) $7(2x)$

A) $(7 + 2)x$ B) $(7 \cdot 2) + x$ C) $7(2 + x)$ D) $(7 \cdot 2)x$

Answer: D

82) $3(5(a + b))$

A) $(3 \cdot 5)(a + b)$ B) $(3 + 5)(ab)$ C) $3((5a) + b)$ D) $(5(a + b))3$

Answer: A

Use the distributive property to multiply the given expressions.

83) $4(x - 9)$

A) $4x - 9$ B) $4x + 36$ C) $x + 36$ D) $4x - 36$

Answer: D

84) $(a + 4)2$

A) $2a + 8$ B) $8a$ C) $a + 8$ D) $2a + 4$

Answer: A

85) $2(3x + 4)$

A) $14x$ B) $5x + 6$ C) $6x + 4$ D) $6x + 8$

Answer: D

86) $(m + 2 - 2n)5$

A) $m + 10 - 10n$ B) $5m + 10 - 10n$ C) $5m + 10 - 2n$ D) $5m + 7 - 7n$

Answer: B

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87) $7(y - 4x + 9)$

A) $y - 28x + 63$ B) $7y - 28x + 9$ C) $7y - 11x + 16$ D) $7y - 28x + 63$

Answer: D

Use the distributive property to rewrite the sum or difference as a product. Simplify the answer if possible.

88) $9a + 21a$

A) a B) $-12a$ C) $30a$ D) a

Answer: C

89) $4c + 7c$

A) $-3c$ B) $28c$ C) $3c$ D) $11c$

Answer: D

90) $fx - gx$

A) $f(x - g)$ B) $(f - x)g$ C) $x(f - g)$ D) $x(f + g)$

Answer: C

Write the expression using exponential notation. Then identify the base and the exponent.

91) $x \cdot x \cdot x$

A) 3^x
base: x
exponent: 3

B) x^3
base: x
exponent: 3

C) 3^x
base: 3
exponent: x

D) x^3
base: 3
exponent: x

Answer: B

92) $(-6x) \cdot (-6x) \cdot (-6x) \cdot (-6x)$

A) $-6x^4$
base: $-6x$
exponent: 4

B) $-6x^4$
base: $6x$
exponent: 4

C) $(-6x)^4$
base: $6x$
exponent: 4

D) $(-6x)^4$
base: $-6x$
exponent: 4

Answer: D

Evaluate.

93) 6^3

A) -216 B) -18 C) 216 D) 18

Answer: C

94) -5^2

A) -10 B) 25 C) -25 D) 10

Answer: C

95) $(-4)^3$

A) -64 B) -12 C) 12 D) 64

Answer: A

96) $(11x)^2$

A) $11x^2$ B) $22x^2$ C) $121x^2$ D) $121x$

Answer: C

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Simplify the expression using the order of operations.

97) $4 + (24 \cdot 21) - 17$

A) 32 B) 571 C) 491 D) 112

Answer: C

98) $-1 - (-2 + 9 \cdot 3 + 5)$

A) -35 B) -21 C) 29 D) -31

Answer: D

99) $8^2 - 3 \cdot 9$

A) 225 B) 549 C) 360 D) 37

Answer: D

100) $8^2 - 2(6) + 15 \div 3$

A) 221 B) 57 C) $\frac{67}{3}$ D) 21

Answer: B

101) $|5 - 13| \cdot -12 \div (-4)$

A) 384 B) 24 C) -24 D) -384

Answer: B

102) $(-2 - 6) \cdot (-3 + 8) - 6^3$

A) -256 B) 176 C) 216 D) 5

Answer: A

103) $\frac{5 + (-3)^2 + 7 \cdot 3^2}{7^2 \cdot (6 - 4)}$

A) $\frac{117}{38}$ B) $\frac{11}{14}$ C) 2 D) 0

Answer: B

Evaluate the algebraic expression for the indicated variable.

104) $\frac{15x - 5y}{x + 6}$ for x = 10, y = 7

A) $\frac{55}{16}$ B) $\frac{115}{13}$ C) $\frac{115}{16}$ D) $\frac{55}{13}$

Answer: C

105) $\frac{9xy + 30}{x}$ for x = 5, y = 7

A) 6 B) 69 C) 93 D) 15

Answer: B

106) $-5x^2 + 3y^2$ for x = , y =

A) -57 B) -39 C) -3 D) -33

Answer: D

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107) $-4a^2 - 6b + c - 18$ for $a = 2, b = -4, c = -2$

A) -12 B) -24 C) -60 D) -4

Answer: A

108) $|8a^2 - b^2| + c$ for $a = -6, b = 0, c = 18$

A) 270 B) 66 C) 306 D) -306

Answer: C

Simplify the algebraic expression.

109) $-7x - 3x$

A) x B) $-10 + x$ C) $-10x$ D) $-4x$

Answer: C

110) $x^9 + 6x^9$

A) x^9 B) x^{18} C) x^{81} D) x^9

Answer: D

111) $-5x + 4y - 6x + 3y$

A) $-5x - 6x + 4y + 3y$ B) $-4xy$ C) $-11x + 7y$ D) $x - 11y$

Answer: C

112) $-6(2x - 7) - 4x + 5$

A) $-16x - 37$ B) $-16x + 47$ C) $8x + 47$ D) $16x + 47$

Answer: B

113) $7(8x - 4) - 6(x - 2)$

A) $50x - 6$ B) $14x - 16$ C) $50x - 40$ D) $50x - 16$

Answer: D

Use the laws of exponents to simplify each expression using positive exponents only. Assume all variables represent nonzero real numbers.

114) $4^5 \cdot 4^2$

A) 16^7 B) 4^7 C) 4^{10} D) 16^{10}

Answer: B

115) $x^3 \cdot x^9$

A) x^{27} B) $27x$ C) x^{12} D) $12x$

Answer: C

116) $(x^8)(4x^7)$

A) $-24x^{56}$ B) x^{56} C) $-24x^{15}$ D) x^{15}

Answer: D

117) $(-2x^6y)(-7x^2y^3)$

A) $-9x^8y^3$ B) $14x^{12}y^3$ C) $14x^8y^4$ D) $-14x^8y^3$

Answer: C

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118) $\frac{x^{10}}{x^5}$

A) x^{15} B) $\frac{1}{x^{15}}$ C) $\frac{1}{x^5}$ D) x^5

Answer: D

119) $(x^6)^{-5}$

A) $-5x^{30}$ B) $-x^{30}$ C) $-5x^6$ D) $\frac{1}{x^{30}}$

Answer: D

120) $(x^{-4})^{-3}$

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

Answer: D

121) $\frac{x^{-8}}{x^{-11}}$

A) x^{19} B) $\frac{1}{x^{19}}$ C) $\frac{1}{x^3}$ D) x^3

Answer: D

122) $-5y^0$

A) -5 B) 1 C) -4 D) 0

Answer: A

123) $(13b)^0$

A) 1 B) b C) 0 D) 13

Answer: A

124) 2^{-3}

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

Answer: C

125) -5^{-4}

A) $\frac{1}{20}$ B) $-\frac{1}{625}$ C) 625 D) -625

Answer: B

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126) $\frac{x^4y^{-6}}{z^{-2}}$

A) $\frac{x^4z^2}{y^6}$ B) $\frac{z^2}{x^4y^6}$ C) $\frac{x^4z^6}{y^2}$ D) $\frac{y^6}{x^4z^2}$

Answer: A

127) $x^4\,x^{-2}$

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

Answer: D

128) $x^{-7}\,x^4$

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

Answer: B

129) $5^{-3}\cdot 5$

A) $\frac{1}{25}$ B) $\frac{1}{125}$ C) 125 D) 25

Answer: A

130) $\frac{x^{-8}}{x^3}$

A) $\frac{1}{x^5}$ B) $\frac{1}{x^{11}}$ C) $\frac{1}{x^{24}}$ D) x^{11}

Answer: B

131) $(-4x^4y^3)^2$

A) $-16x^8y^6$ B) $16x^8y^6$ C) $-4x^8y^6$ D) $16x^6y^5$

Answer: B

132) $\frac{48x^6y^{13}}{6x^5y^{-10}}$

A) $8xy^{23}$ B) $8xy^3$ C) $8x^{11}y^{23}$ D) $48xy^{23}$

Answer: A

133) $(-2x^5y^{-6})(5x^{-1}y)$

A) $-10x^4y^7$ B) $\frac{-10x^4}{y^5}$ C) $\frac{-10x^6}{y^7}$ D) $\frac{3x^4}{y^5}$

Answer: B

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134) $\left(\frac{-24x^4y^8}{8x^7y^{-3}}\right)^3$

A) $\frac{-27y^{33}}{x^9}$ B) $\frac{-27y^{15}}{x^9}$ C) $\frac{27y^{33}}{x^9}$ D) $\frac{-27}{x^9y^{33}}$

Answer: A

135) $\left(\frac{8x^{-3}y^{-3}z^4}{2xy^{-3}z^{-4}}\right)^{-3}$

A) $\frac{x^{12}y^6}{64z^{24}}$ B) $\frac{4x^{12}}{z^{24}}$ C) $\frac{x^{12}}{64z^{24}}$ D) $\frac{x^6}{64z^{24}}$

Answer: C

Simplify the radical expression. Assume all variables represent positive real numbers.

136) $\sqrt{9}$

A) $\frac{1}{9}$ B) 3 C) 81 D) not a real number

Answer: B

137) $\sqrt{\frac{1}{64}}$

A) $\frac{1}{4096}$ B) 64 C) $\frac{1}{8}$ D) 8

Answer: C

138) $\sqrt[3]{511}$

A) 8 B) 23 C) ±8 D) 63

Answer: A

139) $\sqrt[3]{-1000}$

A) - 10 B) 100 C) 32 D) ±10

Answer: A

140) $\sqrt[4]{10{,}000}$

A) - 10 B) 10 C) 10,000 D) not a real number

Answer: B

141) $\sqrt{45}$

A) $3\sqrt{5}$ B) $9\sqrt{5}$ C) $\sqrt{45}$ D) 15

Answer: A

142) $\sqrt[3]{320}$

A) 20 B) $4\sqrt[3]{5}$ C) $4\sqrt[3]{20}$ D) 4

Answer: B

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Simplify the expression. Include absolute value bars where necessary.

143) $\sqrt[9]{g^9}$

A) $\sqrt[9]{g}$ B) g^9 C) g D) $-g$

Answer: C

144) $\sqrt[10]{p^{10}}$

A) $|p|$ B) $-|p|$ C) p D) $-p$

Answer: A

145) $\sqrt[9]{(-3)^9}$

A) 3 B) $|-3|$ C) $(-3)^9$ D) -3

Answer: D

Simplify the exponential expression. Write any negative exponents as positive exponents. Assume all variables represent positive real numbers.

146) $8^{1/3}$

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

Answer: B

147) $729^{1/3}$

A) 27 B) 6561 C) 19,683 D) 9

Answer: D

148) $81^{1/4}$

A) 243 B) 12 C) 36 D) 3

Answer: D

149) $\left(\frac{1}{25}\right)^{1/2}$

A) 5 B) -5 C) $-\frac{1}{5}$ D) $\frac{1}{5}$

Answer: D

150) $-243^{1/5}$

A) 243 B) -27 C) -3 D) 81

Answer: C

151) $8^{4/3}$

A) 128 B) 64 C) 32 D) 16

Answer: D

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152) $\left(\frac{1}{27}\right)^{2/3}$

A) $\frac{1}{4}$ B) $\frac{1}{13}$ C) $-\frac{1}{9}$ D) $\frac{1}{9}$

Answer: D

153) $(-64)^{4/3}$

A) 4096 B) - 256 C) 256 D) not a real number

Answer: C

154) $64^{-3/2}$

A) - 512 B) 512 C) $-\frac{1}{512}$ D) $\frac{1}{512}$

Answer: D

155) $8^{-4/3}$

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

Answer: D

156) $x^{7/8} \cdot x^{1/8}$

A) $\frac{1}{x}$ B) $x^{7/8}$ C) x D) $x^{7/64}$

Answer: C

157) $x^{-2/7} \cdot x^{3/7}$

A) $x^{1/7}$ B) $x^{7/6}$ C) $x^{-1/7}$ D) $x^{6/7}$

Answer: A

158) $(x^{14}y^7)^{1/7}$

A) x^2y B) $x^2|y|$ C) x^2 D) $x^{14}y$

Answer: A

159) $(27x^6y^6)^{1/3}$

A) $3x^2y$ B) $3x^2y^2$ C) x^2y^2 D) $3x^6y^2$

Answer: B

160) $(9x^8y^{-16})^{1/2}$

A) $3x^4y^8$ B) $\frac{3}{x^4y^8}$ C) $\frac{9x^4}{y^8}$ D) $\frac{3x^4}{y^8}$

Answer: D

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161) $(9x^{1/5}y^{1/5})^2$

A) $81x^{1/25}y^{1/25}$ B) $81x^{2/5}y^{2/5}$ C) $81x^{1/10}y^{1/10}$ D) $81x^2y^2$

Answer: B

162) $\dfrac{x^{1/6} \cdot x^{5/3}}{x^{1/2}}$

A) $\dfrac{1}{x^{4/3}}$ B) $x^{4/3}$ C) $\dfrac{1}{x^{7/3}}$ D) $x^{7/3}$

Answer: B

163) $\dfrac{(3x^{3/2})^2}{x^{-5/2}}$

A) $3x^{1/2}$ B) $9x^{11/2}$ C) $9x^{1/2}$ D) $3x^{11/2}$

Answer: B

Multiply.

164) $\sqrt{180} \cdot \sqrt{5}$

A) 900 B) $6\sqrt{5}$ C) 30 D) $5\sqrt{6}$

Answer: C

165) $\sqrt{7x^3} \cdot \sqrt{7x^5}$

A) $x^4\sqrt{14}$ B) $7x^4$ C) $\sqrt{7x^4}$ D) $\sqrt{49x^8}$

Answer: B

166) $\sqrt[3]{4x} \cdot \sqrt[3]{9x}$

A) $5x$ B) $6x$ C) $\sqrt[3]{36x^2}$ D) $\sqrt[3]{13x^2}$

Answer: C

Use the product rule to simplify.

167) $\sqrt{180}$

A) $6\sqrt{5}$ B) 13 C) $36\sqrt{5}$ D) 6

Answer: A

168) $\sqrt[3]{432}$

A) 20 B) $6\sqrt[3]{2}$ C) 7 D) $2\sqrt[3]{6}$

Answer: B

169) $\sqrt{147x^2}$

A) $147x$ B) $7x\sqrt{3}$ C) $7x$ D) $7\sqrt{3x}$

Answer: B

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170) $\sqrt[3]{8y^6}$

A) $8y^2$ B) $2y^2$ C) $-2y^2$ D) $2y^9$

Answer: B

171) $\sqrt{x^9}$

A) $x^{18}\sqrt{x}$ B) $x^5\sqrt{x}$ C) $x^9\sqrt{x}$ D) $x^4\sqrt{x}$

Answer: D

172) $\sqrt[3]{-27a^8b^5}$

A) $3\sqrt{a^2b^2}$ B) $3ab\sqrt[3]{a^3b^3}$ C) $-3a^2b\sqrt[3]{a^2b^2}$ D) $3ab\sqrt[3]{a^2b^2}$

Answer: C

Multiply and simplify.

173) $\sqrt{15}\sqrt{27}$

A) $-15\sqrt{3}$ B) $15\sqrt{3}$ C) $9\sqrt{5}$ D) $-9\sqrt{5}$

Answer: C

174) $\sqrt[3]{xy^5} \cdot \sqrt[3]{x^{16}y^{20}}$

A) $x^5y^8\sqrt[3]{xy^2}$ B) $x^5y^6\sqrt[3]{x^2y^2}$ C) $x^5y^9\sqrt[3]{xy}$ D) $x^5y^8\sqrt[3]{x^2y}$

Answer: D

175) $\sqrt{15xy} \cdot \sqrt{5xy^2}$

A) $xy\sqrt{75y}$ B) $5xy\sqrt{3y}$ C) $5xy^2\sqrt{3}$ D) $5x^2y^2\sqrt{3y}$

Answer: B

176) $4\sqrt{6x} \cdot 2\sqrt{18x}$

A) $48x\sqrt{3}$ B) $8x\sqrt{18}$ C) $48\sqrt{3}$ D) $8x\sqrt{3}$

Answer: A

177) $2x\sqrt[3]{2m} \cdot 5x\sqrt[3]{4m^2}$

A) $20x^2$ B) $20x^2m^3$ C) $20x^2m$ D) $10x^2m$

Answer: C

Use the quotient rule to simplify.

178) $\sqrt{\frac{144}{289}}$

A) $\frac{2}{3}$ B) $\frac{13}{17}$ C) $\frac{1}{2}$ D) $\frac{12}{17}$

Answer: D

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179) $\sqrt{\frac{8x^3}{25y^6}}$

A) $\frac{2x^3\sqrt{2}}{5y^3}$ B) $\frac{2\sqrt{2x^3}}{5y^3}$ C) $\frac{2x\sqrt{2x}}{5y^3}$ D) $\frac{2x^2\sqrt{2xy^3}}{5y^3}$

Answer: C

180) $\sqrt[3]{\frac{81x^4}{3x}}$

A) $3x\sqrt[3]{3}$ B) $3x\sqrt[3]{x}$ C) $x\sqrt[3]{27}$ D) $3x$

Answer: D

181) $\sqrt{\frac{20x^2y}{49}}$

A) $\frac{2\sqrt{5x^2y}}{7}$ B) $4x\sqrt{5y}$ C) $x\sqrt{\frac{20y}{7}}$ D) $\frac{2x\sqrt{5y}}{7}$

Answer: D

182) $\sqrt{\frac{28x^7}{7x}}$

A) $2x^3$ B) $2x^3\sqrt{x}$ C) $x^3\sqrt{2}$ D) $x^3\sqrt{7}$

Answer: A

183) $\frac{\sqrt{100}}{\sqrt{25}}$

A) 5 B) 2 C) 4 D) 10

Answer: B

184) $\frac{\sqrt{x^5y^{11}}}{\sqrt{x^3y^6}}$

A) $xy^2\sqrt{y}$ B) $xy\sqrt{y}$ C) $x^2y\sqrt{y}$ D) $xy^2\sqrt{x}$

Answer: A

185) $\frac{\sqrt[3]{16x^4}}{\sqrt[3]{2x}}$

A) $2x\sqrt[3]{2}$ B) $x\sqrt[3]{8}$ C) $2x$ D) $2x\sqrt[3]{x}$

Answer: C

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186) $\dfrac{\sqrt[3]{135}}{\sqrt[3]{5}}$

A) 3 B) $\sqrt[3]{\dfrac{135}{5}}$ C) $\sqrt[3]{27}$ D) $3\sqrt[3]{5}$

Answer: A

187) $\dfrac{\sqrt[3]{-128x^4}}{\sqrt[3]{2x^{-2}}}$

A) $-64x^8$ B) $-4x^2$ C) $4x^2$ D) $-4x^6$

Answer: B

Determine whether the expression is a monomial. If it is a monomial, state the coefficient and degree.

188) x^7

A) monomial; coefficient ; degree 7
B) monomial; coefficient 7; degree 0
C) not a monomial
D) monomial; coefficient 7; degree 14

Answer: A

189) $\dfrac{15}{x}$

A) monomial; coefficient 15; degree 1
B) monomial; coefficient 15; degree - 1
C) not a monomial
D) monomial; coefficient 15; degree 0

Answer: C

190) $-7x^4y^5$

A) not a monomial
B) monomial; coefficient - 7; degree 9
C) monomial; coefficient - 7; degree 4
D) monomial; coefficient - 7; degree 5

Answer: B

191) $6x^4 - 2$

A) monomial; coefficient 2; degree 4
B) monomial; coefficient 6; degree 4
C) monomial; coefficient 6; degree 1
D) not a monomial

Answer: D

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

192) $7x^2 - \dfrac{5}{x}$

A) polynomial; degree 1
B) not a polynomial
C) polynomial; degree 2
D) polynomial; degree - 1

Answer: B

193) 8π

A) not a polynomial
B) polynomial, degree 1
C) polynomial, degree 0
D) polynomial, degree 8

Answer: C

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194) $-5y^5 - \sqrt{3}$

A) not a polynomial
B) polynomial; degree 3
C) polynomial; degree 5
D) polynomial; degree - 5

Answer: C

195) $\frac{x^4 - 9}{x^6 + 3}$

A) polynomial, degree - 2
B) not a polynomial
C) polynomial, degree 10
D) polynomial, degree 4

Answer: B

Perform the indicated operations.

196) $(-4x^2y - xy) + (7x^2y + 5xy)$

A) $11x^2y + 6xy$
B) $x^2y + 6xy$
C) $11x^2y + 4xy$
D) $x^2y + 4xy$

Answer: D

197) $(5x^2 - xy - y^2) + (x^2 + 12xy + 12y^2)$

A) $6x^2 + 11xy + 11y^2$
B) $6x^2 + 13xy + 13y^2$
C) $4x^2 - 13xy - 13y^2$
D) $5x^2 + 12xy + 12y^2$

Answer: A

198) $\left(\frac{2}{3}x^2 - \frac{3}{4}x - \frac{1}{4}\right) + \left(\frac{4}{5}x^2 + \frac{1}{3}x - \frac{2}{3}\right)$

A) $-x^6 - \frac{11}{12}$
B) $-x^2 - \frac{5}{12}x + \frac{11}{12}$
C) $-x^4 - \frac{5}{12}x^2 - \frac{11}{12}$
D) $-x^2 - \frac{5}{12}x - \frac{11}{12}$

Answer: D

199) $(x^2 + 9) - (-x^3 - 5x^2 - 10)$

A) $x^3 + 4x^2 - 1$
B) $x^3 - 5x^2 + 19$
C) $x^3 + 14x^2 + 19$
D) $x^3 + 4x^2 + 10$

Answer: C

200) $(6x^2y + 6xy + 5xy^2) - (2xy + 2xy^2 + 2x^2y)$

A) $4x^2y + 3xy^2 + 4xy$
B) $4x^2y - 3xy^2 + 4xy$
C) $4x^2y - 3xy^2 + 8xy$
D) $x^2y + 5xy^2 + 4xy$

Answer: A

201) $(7x^2 + 7x - 9) - (9x^2 - 1)$

A) $16x^2 + 8x - 9$
B) $-2x^2 + 8x - 9$
C) $16x^2 + 7x - 10$
D) $-2x^2 + 7x - 8$

Answer: D

202) $\left(-\frac{9}{11}x^2y + \frac{2}{3}\right) - \left(-\frac{5}{11}x^2y - \frac{1}{6}\right)$

A) $-\frac{4}{11}x^2y + \frac{1}{2}$
B) $\frac{4}{11}x^2y + \frac{1}{2}$
C) $\frac{4}{11}x^2y + \frac{5}{6}$
D) $-\frac{4}{11}x^2y + \frac{5}{6}$

Answer: D

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203) $(8x^2 + 4x - 7) + (8x + 7)$

A) $8x^2 + 12x - 14$ B) $8x^2 + 4x + 14$ C) $20x^3$ D) $8x^2 + 12x$

Answer: D

204) $(2x^2 + 3x - 4) + (8x^2 - 7x - 7)$

A) $10x^2 + 4x - 11$ B) $x^2 - 5x - 4$ C) $10x^2 - 4x + 11$ D) $10x^2 - 4x - 11$

Answer: D

205) $(9x^2 + 11x - 14) - (6x^2 - 19x + 8)$

A) $3x^2 + 30x - 22$ B) $3x^2 + 30x - 6$ C) $3x^2 + 30x + 22$ D) $3x^2 + 17x - 6$

Answer: A

206) $(5x^5 + 7x^2) + (8x^5 - 3x^2)$

A) $17x^{14}$ B) $13x^{10} + 4x^4$ C) $17x^7$ D) $13x^5 + 4x^2$

Answer: D

207) $(x^3 + 4x^2) - (-7x^3 + 20x^2)$

A) $x^3 + 24x^2$ B) x^5 C) $x^3 - 16x^2$ D) $x^3 + 24x^2$

Answer: C

208) $(2x^5 + 5x^3) + (7x^5 - 9x^3 + 3)$

A) $9x^5 - 4x^3 + 3$ B) $3x^9$ C) $2x^5 - 7x^3 + 3x$ D) $3x - 4x^5 - 2x^3$

Answer: A

209) $(-10x^2 - 8) - (-x^3 + 5x^2 - 1)$

A) $-9x^3 + 5x^2 - 7$ B) $x^3 - 15x^2 - 7$ C) $-9x^3 - 3x^2 + 1$ D) $x^3 - 5x^2 - 9$

Answer: B

210) $(3x^6 + 19x^3 - 2) - (8x^6 - 20x^3 + 13)$

A) $-5x^6 + 39x^3 - 15$ B) $-5x^6 + 27x^3 + 11$ C) x^9 D) $-5x^6 + 39x^3 + 11$

Answer: A

211) $(5x^5 + 16x^4 - 18) - (9x^4 + 3x^5 - 3)$

A) $x^5 + 7x^4 - 21$ B) $x^5 + 19x^4 - 21$ C) $x^5 + 7x^4 - 15$ D) $-6x^9$

Answer: C

212) $(7x^7 - 2x^4 - 9x) + (2x^7 + 8x^4 + 6x)$

A) $9x^7 + 6x^4 - 3x$ B) $12x^{12}$ C) $-7x^7 + 15x^4 + 4x$ D) $9x + 6x^7 - 3x^4$

Answer: A

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

A) $-5x^2 + x - 9$ B) $-4x^2 + x - 9$ C) $-3x^2 + x - 9$ D) $-3x^2 + 5x - 5$

Answer: C

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

214) $-8x(x-7)$

A) $-72x^2+56x$ B) $-72x^2-7x$ C) x^2+56x D) $-16x^2$

Answer: A

215) $-3x^3(-5x-12)$

A) x^3 B) x^4+36x^3 C) $x+36$ D) x^4-12

Answer: B

216) $x^6(-4x^2-2)$

A) $-20x^8-10x^6$ B) $-20x^8-2$ C) $-20x^2-10$ D) $-30x^6$

Answer: A

217) $x^7(x^4-10x^2+2)$

A) $12x^{11}-40x^9+8x^7$ B) $12x^4-40x^2+8$ C) $12x^{11}-10x^2+2$ D) $12x^{11}-40x^9$

Answer: A

218) $(x-11)(x^2+4x-6)$

A) $x^3+15x^2+38x-66$ B) $x^3+15x^2+50x+66$ C) $x^3-7x^2-38x-66$ D) $x^3-7x^2-50x+66$

Answer: D

219) $(6y+11)(10y^2-2y-2)$

A) $60y^3-12y^2-12y+11$ B) $60y^3+122y^2+34y+22$

C) $170y^2-34y-34$ D) $60y^3+98y^2-34y-22$

Answer: D

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

220) $(x+3)(x+3)$

A) x^2+9x+6 B) x^2+6x+6 C) x^2+5x+9 D) x^2+6x+9

Answer: D

221) $(x-11)(x+11)$

A) $x^2-121x+22$ B) $x^2+22x-121$ C) $x^2+22x+22$ D) $x^2+20x-121$

Answer: B

222) $(x+7)(x-11)$

A) $8x^2-30x-77$ B) $x^2-30x-30$ C) $8x^2-30x-30$ D) $x^2-30x-77$

Answer: A

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

223) $(x+7)(x-7)$

A) $x^2-14x-49$ B) x^2-14 C) $x^2+14x-49$ D) x^2-49

Answer: D

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224) $(9x + 11)(9x - 11)$

A) $81x^2 - 198x - 121$ B) $81x^2 + 198x - 121$ C) $81x^2 - 121$ D) $x^2 - 121$

Answer: C

225) $(x + 8)^2$

A) $x^2 + 16x + 64$ B) $64x^2 + 16x + 64$ C) $x^2 + 64$ D) $x + 64$

Answer: A

226) $(x - 2)^2$

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

Answer: B

227) $(7x + 12)^2$

A) $49x^2 + 168x + 144$ B) $7x^2 + 144$ C) $49x^2 + 144$ D) $7x^2 + 168x + 144$

Answer: A

228) $(9x - 7)^2$

A) $9x^2 - 126x + 49$ B) $9x^2 + 49$ C) $81x^2 - 126x + 49$ D) $81x^2 + 49$

Answer: C

229) $(x + 3)^3$

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

Answer: B

230) $(4x + 5)^3$

A) $64x^3 + 240x^2 + 299x + 125$ B) $16x^2 + 40x + 25$

C) $64x^3 + 240x^2 + 240x + 125$ D) $16x^6 + 20x^3 + 15{,}625$

Answer: A

Find the quotient and the remainder.

231) $x^2 + 2x - 16$ divided by $x + 6$

A) $x - 8$; remainder 4 B) $x + 4$; remainder 8 C) $x - 4$; remainder 8 D) $x - 4$; remainder 0

Answer: C

232) $x^2 + 6x + 6$ divided by $x + 4$

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

C) $x + 2$; remainder 0 D) $x + 2$; remainder 2

Answer: A

233) $6x^3 + 41x^2 - 49x + 56$ divided by $x + 8$

A) $x^2 + 8x + 9$; remainder 0 B) $6x^2 - 7x + 7$; remainder 0

C) $x^2 + 7x + 6$; remainder 0 D) $6x^2 + 7x + 7$; remainder 0

Answer: B

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234) $-9x^3 + 12x^2 - 19x + 24$ divided by $-3x + 2$

A) $x^2 + 5$; remainder -2

B) $3x^2 - 2x + 5$; remainder 17

C) $3x^2 - 2x + 5$; remainder 14

D) $3x^2 - 2x + 5$; remainder 0

Answer: C

235) $5x^3 - 7x^2 + 7x - 8$ divided by $5x - 2$

A) $x^2 - x + 1$; remainder 10

B) $x^2 + x - 1$; remainder -6

C) $x^2 - x + 1$; remainder -6

D) $x^2 - x + 1$; remainder 6

Answer: C

236) $x^4 + 3x^2 + 7$ divided by $x^2 + 1$

A) $x^2 + 2x + 2$; remainder 0

B) $x^2 + 2$; remainder 5

C) $x^2 + 2x + \frac{5}{2}$; remainder 5

D) $x^2 + 2$; remainder 0

Answer: B

Add or subtract, if possible. Assume that all variables represent non-negative values. Simplify your answer.

237) $9\sqrt{11} + 7\sqrt{11}$

A) $63\sqrt{11}$

B) 176

C) $16\sqrt{22}$

D) $16\sqrt{11}$

Answer: D

238) $-8\sqrt{7} - 9\sqrt{28}$

A) $\sqrt{7}$

B) $-10\sqrt{7}$

C) $-17\sqrt{7}$

D) $-26\sqrt{7}$

Answer: D

239) $7\sqrt[4]{6} + 6\sqrt[3]{6}$

A) $42\sqrt[4]{36}$

B) $13\sqrt[3]{6}$

C) $13\sqrt[4]{6}$

D) $7\sqrt[4]{6} + 6\sqrt[3]{6}$

Answer: D

240) $7\sqrt[3]{2} - 6\sqrt{7} + 8\sqrt[3]{2} + 4\sqrt{7}$

A) $15\sqrt[3]{2} - 2\sqrt{7}$

B) $13\sqrt{14}$

C) $15\sqrt{2} - 2\sqrt{7}$

D) $15\sqrt[3]{4} - 2\sqrt{14}$

Answer: A

241) $3\sqrt[3]{x} + 8\sqrt[3]{x}$

A) $11\sqrt[3]{x}$

B) $11\sqrt[6]{x}$

C) $11\sqrt[3]{2x}$

D) $24\sqrt[3]{x}$

Answer: A

242) $\sqrt{13} - 2\sqrt[3]{x} - 8\sqrt{13} - 3\sqrt[3]{x}$

A) $\sqrt{13} - \sqrt[3]{x}$

B) $\sqrt{13} - 5\sqrt[3]{x}$

C) $\sqrt{13} - 5\sqrt[3]{x}$

D) $\sqrt{13} + \sqrt[3]{x}$

Answer: B

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243) $\sqrt{12} + \sqrt{192}$

A) $10\sqrt{3}$ B) $10\sqrt{6}$ C) $-6\sqrt{3}$ D) 30

Answer: A

244) $3\sqrt[3]{2} - 5\sqrt[3]{250}$

A) $22\sqrt[3]{2}$ B) $-2\sqrt[3]{2}$ C) $3\sqrt[3]{2} - 5\sqrt[3]{250}$ D) $-22\sqrt[3]{2}$

Answer: D

245) $\sqrt{245} + 5\sqrt{28} - \sqrt{605} - 2\sqrt{63}$

A) $-3\sqrt{5} + 4\sqrt{7}$ B) $\sqrt{5} + 4\sqrt{7}$ C) $\sqrt{5} - 4\sqrt{7}$ D) $-3\sqrt{5} - 4\sqrt{7}$

Answer: B

246) $5\sqrt{32x^2} - 2\sqrt{18x^2} - \sqrt{2x^2}$

A) $14x\sqrt{2}$ B) $3x\sqrt{14}$ C) $13x\sqrt{2}$ D) $2x\sqrt{14}$

Answer: C

247) $7\sqrt[4]{x^7} - 3x\sqrt[4]{x^3}$

A) $7\sqrt[4]{x^7} - 3x\sqrt[4]{x^3}$ B) $10\sqrt[4]{x^3}$ C) $4x\sqrt[4]{x^7}$ D) $4x\sqrt[4]{x^3}$

Answer: D

248) $9\sqrt[3]{x^3y^{10}} - 2xy\sqrt[3]{8y^7}$

A) $7x^2y^4\sqrt[3]{y}$ B) $7xy^4\sqrt[3]{8y}$ C) $5x^2y^3\sqrt[3]{2y}$ D) $5xy^3\sqrt[3]{y}$

Answer: D

249) $\frac{\sqrt{48}}{3y} + \frac{6\sqrt{12}}{5y}$

A) $\frac{56\sqrt{3}}{15y}$ B) $\frac{56\sqrt{3}}{5y}$ C) $\frac{112\sqrt{3}}{15y}$ D) $\frac{56}{15y}$

Answer: A

250) $\frac{\sqrt[4]{256x^7}}{4} - \frac{8x\sqrt[4]{81x^3}}{3}$

A) $-7\sqrt[4]{x^3}$ B) $9x\sqrt[4]{x^3}$ C) $-7x$ D) $-7x\sqrt[4]{x^3}$

Answer: D

Multiply.

251) $\sqrt{2}(\sqrt{2} + x\sqrt{14})$

A) $4 + x\sqrt{7}$ B) $2 + 2x\sqrt{14}$ C) $2 + 2x\sqrt{7}$ D) $2 + x\sqrt{7}$

Answer: C

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252) $3\sqrt{y}(\sqrt{y} - 8)$

A) $3y - 24\sqrt{y}$ B) $3y + 24\sqrt{y}$ C) $3\sqrt{y} - 24y$ D) $3y + \sqrt{-24y}$

Answer: A

253) $2\sqrt{7x}(\sqrt{11} + \sqrt{7x})$

A) $2\sqrt{11} + 7x$ B) $2\sqrt{77x} + 14x$ C) $2\sqrt{77} + 7x$ D) $14\sqrt{11x} + 14x$

Answer: B

254) $7\sqrt[3]{x^2}\left(8\sqrt[3]{x} - 2\sqrt[3]{x^2}\right)$

A) $56x - 14x\sqrt[3]{x}$ B) $42\sqrt[3]{x}$ C) $56x - 14\sqrt[3]{x}$ D) $56x - 14x\sqrt[3]{x^2}$

Answer: A

255) $(8\sqrt{2} + 9)(6\sqrt{2} + 4)$

A) $36 + 48\sqrt{2^2} + 32\sqrt{2}$ B) $132 + 86\sqrt{2}$ C) $116\sqrt{2}$ D) $84\sqrt{2} + 32$

Answer: B

256) $(\sqrt{7x} + 4)(\sqrt{2x} + 3)$

A) $x\sqrt{2} + 12$ B) $x\sqrt{14} + \sqrt{2x} + 12$

C) $x\sqrt{14} + 3\sqrt{7x} + 4\sqrt{2x} + 12$ D) $x\sqrt{14} + 12$

Answer: C

257) $(\sqrt{r} - y)(\sqrt{r} + y)$

A) $r - 2y\sqrt{r} - y^2$ B) $r - y^2$ C) $r - y$ D) $r + 2y\sqrt{r} - y^2$

Answer: B

258) $(4 - \sqrt{x})(5 - \sqrt{x})$

A) $20 - 8\sqrt{x}$ B) $20 - 8x$ C) $20 - 9\sqrt{x} - x$ D) $20 - 9\sqrt{x} + x$

Answer: D

259) $(4\sqrt{x} + \sqrt{y})(4\sqrt{x} - \sqrt{y})$

A) $16x^2 - y^2$ B) $16x - y$ C) $16x - 2\sqrt{xy} - y$ D) $16x + y$

Answer: B

260) $(9\sqrt{5} - 4)^2$

A) $401 - 72\sqrt{5}$ B) $- 72\sqrt{5}$ C) $421 + 72\sqrt{5}$ D) $421 - 72\sqrt{5}$

Answer: D

261) $(\sqrt{m} - 4)(4 + \sqrt{m})$

A) $m - 8\sqrt{m} - 16$ B) $m - \sqrt{m} + 16$ C) $16 - m$ D) $m - 16$

Answer: D

262) $(3\sqrt{x} - 5\sqrt{y})^2$

A) $9x + 15\sqrt{xy} + 25y$ B) $9x - 30\sqrt{xy} + 25y$ C) $9x + 25y$ D) $9x - 30xy + 25y$

Answer: B

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Rationalize the denominator.

263) $\frac{6}{\sqrt{5}}$

A) 31 B) $6\sqrt{5}$ C) $\frac{36\sqrt{5}}{5}$ D) $\frac{6\sqrt{5}}{5}$

Answer: D

264) $\frac{\sqrt{11}}{\sqrt{13}}$

A) $\sqrt{143}$ B) $\frac{\sqrt{143}}{169}$ C) $\sqrt{11}$ D) $\frac{\sqrt{143}}{13}$

Answer: D

265) $\sqrt{\frac{18}{x}}$

A) $3\sqrt{2x}$ B) $\frac{3\sqrt{2x}}{x}$ C) $3\sqrt{\frac{2}{x}}$ D) $\frac{\sqrt{3x}}{x}$

Answer: B

266) $\frac{5}{\sqrt{216x}}$

A) $\frac{5\sqrt{216x}}{216x}$ B) $\frac{5\sqrt{6x}}{36x}$ C) $\frac{\sqrt{30x}}{36x}$ D) $\frac{5\sqrt{x}}{6x}$

Answer: B

267) $\sqrt[3]{\frac{u^4}{36v}}$

A) $u\sqrt[3]{\frac{u}{36v}}$ B) $u\sqrt[3]{\frac{u}{6v}}$ C) $\frac{u\sqrt[3]{6uv^2}}{v}$ D) $\frac{u\sqrt[3]{6uv^2}}{6v}$

Answer: D

268) $\frac{\sqrt[4]{625}}{\sqrt[4]{9x^{11}}}$

A) $\frac{5\sqrt[4]{9x^3}}{3x^3}$ B) $\frac{5\sqrt[4]{9x}}{3x^2}$ C) $\frac{5\sqrt[4]{9x}}{3x^3}$ D) $\frac{5\sqrt[4]{9x^3}}{3x^2}$

Answer: C

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269) $\dfrac{\sqrt[3]{7x}}{\sqrt[3]{3y}}$

A) $\dfrac{\sqrt[3]{63xy}}{3y}$ B) $\dfrac{63x}{3y}$ C) $\dfrac{\sqrt[3]{63xy^2}}{3y}$ D) $\dfrac{\sqrt[3]{189xy^2}}{3y}$

Answer: C

270) $\dfrac{5}{9 - \sqrt{7}}$

A) $\dfrac{45 - 5\sqrt{7}}{74}$ B) $\dfrac{45 + 5\sqrt{7}}{-2}$ C) $\dfrac{45 + 5\sqrt{7}}{74}$ D) $\dfrac{5}{9} - \dfrac{5}{\sqrt{7}}$

Answer: C

271) $\dfrac{8}{\sqrt{17} + 4}$

A) $\dfrac{8\sqrt{17} + 32}{34}$ B) $8\sqrt{17} - 32$ C) $8\sqrt{17} - 4$ D) $8\sqrt{17} + 32$

Answer: B

272) $\dfrac{7}{\sqrt{x} + 8}$

A) $\dfrac{-56 + 7\sqrt{x}}{x^2 - 64}$ B) $\dfrac{-56 + 7\sqrt{x}}{x - 64}$ C) $\dfrac{-56 - 7\sqrt{x}}{x - 64}$ D) $\dfrac{-56 - 7\sqrt{x}}{x + 64}$

Answer: B

273) $\dfrac{5 - \sqrt{z}}{2 + \sqrt{z}}$

A) $\dfrac{10 - \sqrt{z} + z}{4 + z}$ B) $\dfrac{10 - 7\sqrt{z} + z}{4 + z}$ C) $\dfrac{10 - 7\sqrt{z} + z}{4 - z}$ D) $\dfrac{10 + 7\sqrt{z} - z}{4 - z}$

Answer: C

274) $\dfrac{3\sqrt{2} + \sqrt{6}}{7\sqrt{2} - \sqrt{6}}$

A) $\dfrac{24 + 10\sqrt{3}}{46}$ B) $\dfrac{12 + 5\sqrt{3}}{23}$ C) $\dfrac{48 + 20\sqrt{3}}{92}$ D) $\dfrac{48 + 10\sqrt{12}}{92}$

Answer: B

Factor out the greatest common factor.

275) $2x + 8$

A) $2x(x + 4)$ B) $2x(4)$ C) $2(x + 4)$ D) $2(x + 8)$

Answer: C

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276) $3x^2 + 12x$

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

Answer: B

277) $18x^4 - 6x^3 + 8x^2$

A) $2x^2(9x^2 - 3x + 4)$ B) $2x(9x^3 - 3x^2 + 4x)$ C) $x^2(18x^2 - 6x + 8)$ D) $2(9x^4 - 3x^3 + 4x^2)$

Answer: A

278) $x(x + 3) + 11(x + 3)$

A) $3x(x + 11)$ B) $(x + 3)(x + 11)$

C) $(x^2 + 3x) + (11x + 33)$ D) $11x(x + 3)$

Answer: B

279) $x(6x + 5) - 3(6x + 5)$

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

Answer: D

280) $x^2(x - 10) - (x - 10)$

A) $(x^3 - 10x^2) - (x - 10)$ B) $(x - 10)(x^2 + 1)$

C) $(x - 10)(x^2 - 1)$ D) $x^2(x - 10)$

Answer: C

Factor the polynomial by grouping.

281) $x^2 + 8x + 3x + 24$

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

Answer: C

282) $2x^2 + 5x + 10x + 25$

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

Answer: D

283) $15x^2 + 12x - 10x - 8$

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

Answer: D

284) $15x^2 + 10x - 6x - 4$

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

Answer: D

Completely factor the polynomial or state that the polynomial is prime.

285) $x^2 - x - 20$

A) $(x + 1)(x - 20)$ B) $(x + 4)(x - 5)$ C) $(x + 5)(x - 4)$ D) prime

Answer: B

286) $x^2 + 6x + 5$

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

Answer: A

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287) $x^2 + 8x - 33$

A) $(x - 11)(x + 3)$ B) $(x + 11)(x - 3)$ C) $(x - 11)(x + 1)$ D) prime

Answer: B

288) $x^2 - x - 40$

A) $(x + 5)(x - 8)$ B) $(x - 5)(x + 8)$ C) $(x - 40)(x + 1)$ D) prime

Answer: D

289) $x^2 + 25$

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

Answer: A

290) $4x^2 - 4x - 24$

A) prime B) $(4x + 8)(x - 3)$ C) $4(x - 2)(x + 3)$ D) $4(x + 2)(x - 3)$

Answer: D

291) $2x^2 - 12x + 16$

A) $2(x - 4)(x - 2)$ B) $(x - 4)(2x - 4)$ C) prime D) $2(x - 8)(x + 1)$

Answer: A

292) $5x^3 + 5x^2 - 100x$

A) $5x(x - 4)(x + 5)$ B) $(x - 4)(5x^2 + 25)$ C) $(5x^2 + 20x)(x - 5)$ D) $5x(x + 4)(x - 5)$

Answer: A

293) $(x + 8)^2 - 8(x + 8) + 12$

A) $(x^2 + 8x - 2)(x^2 + 8x - 6)$ B) $(x^2 - 8x + 2)(x^2 - 8x + 6)$

C) $(x + 6)(x + 2)$ D) $(x + 10)(x + 14)$

Answer: C

294) $x^4 + 7x^2 + 10$

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

Answer: B

295) $15x^2 + 19x + 6$

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

Answer: B

296) $20y^2 + 27y + 9$

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

Answer: C

297) $12z^2 - 7z - 12$

A) prime B) $(4z - 3)(3z + 4)$ C) $(12z + 3)(z - 4)$ D) $(4z + 3)(3z - 4)$

Answer: D

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298) $15z^2 - 11z - 12$

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

Answer: D

299) $9x^2 - 6xt - 8t^2$

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

Answer: C

300) $10z^2 - 7z - 12$

A) $(2z + 3)(5z - 4)$ B) prime C) $(2z - 3)(5z + 4)$ D) $(10z - 3)(z + 4)$

Answer: C

301) $27x^2 - 117x - 90$

A) $9(3x + 2)(x - 5)$ B) prime C) $9(3x - 2)(x + 5)$ D) $(27x + 18)(x - 5)$

Answer: A

302) $14x^2 - 49x - 28$

A) $7(2x - 1)(x + 4)$ B) $7(2x + 1)(x - 4)$ C) $(14x - 7)(x + 4)$ D) prime

Answer: B

303) $14y^2 + 63y - 35$

A) prime B) $7(2y - 1)(y + 5)$ C) $(14y - 7)(y + 5)$ D) $7(2y + 1)(y - 5)$

Answer: B

304) $6x^2 - 22x + 20$

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

Answer: A

305) $10x^3 + 9x^2 - 9x$

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

Answer: A

306) $48x^2 + 96x + 45$

A) $3(4x + 3)(4x + 5)$ B) $(4x + 1)(4x + 15)$ C) $3(4x + 1)(4x + 15)$ D) $3(15x + 3)(x + 5)$

Answer: A

307) $15(x - 2)^2 - 29(x - 2) - 14$

A) $(3x + 8)(5x + 17)$ B) $(3x + 9)(5x + 4)$ C) $(3x - 13)(5x - 8)$ D) $(3x + 7)(5x + 2)$

Answer: C

308) $9x^4 + 12x^2 + 4$

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

Answer: A

309) $15x^4 - 4x^2 - 4$

A) $(3x^2 - 2)(5x^2 + 2)$ B) $(15x^2 - 2)(x^2 + 2)$ C) $(5x - 2)(3x + 2)$ D) $(3x^2 + 1)(5x^2 - 4)$

Answer: A

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310) $x^2 - 100$

A) $(x^2 + 10)(x^2 - 10)$ B) $(x + 100)(x - 100)$ C) $(x - 10)(x - 10)$ D) $(x + 10)(x - 10)$

Answer: D

311) $9x^2 - 1$

A) $(3x - 1)(3x + 1)$ B) $(3x - 1)^2$ C) $(3x + 1)^2$ D) prime

Answer: A

312) $100 - x^2$

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

Answer: D

313) $4x^2 - 49$

A) $(2x + 7)(2x - 7)$ B) $(2x + 7)^2$ C) $(4x + 1)(x - 49)$ D) $(2x - 7)^2$

Answer: A

314) $x^3 - 343$

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

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

Answer: C

315) $x^3 + 1000$

A) $(x - 10)(x^2 + 10x + 100)$ B) $(x - 1000)(x^2 - 1)$

C) $(x + 10)(x^2 - 10x + 100)$ D) $(x + 10)(x^2 + 100)$

Answer: C

316) $125y^3 - 1$

A) $(5y - 1)(25y^2 + 5y + 1)$ B) $(5y + 1)(25y^2 - 5y + 1)$

C) $(125y - 1)(y^2 + 5y + 1)$ D) $(5y - 1)(25y^2 + 1)$

Answer: A

317) $216x^3 + 1$

A) $(6x + 1)(36x^2 + 1)$ B) $(6x + 1)(36x^2 - 6x + 1)$

C) $(6x + 1)(36x^2 + 6x + 1)$ D) $(6x + 1)(36x^2 - 6x - 1)$

Answer: B

318) $216 - x^3$

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

Answer: C

319) $729x^3 - 512$

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

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

Answer: A

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320) $512x^3 + 729$

A) $(8x + 9)(64x^2 + 72x + 81)$ B) $(512x - 9)(x^2 + 72x + 81)$

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

Answer: D

321) $27 - 8x^3$

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

C) $(27 - 2x)(1 + 6x + 4x^2)$ D) $(3 - 2x)(9 + 4x^2)$

Answer: B

322) $x^2 + 40x + 400$

A) $(x + 20)(x - 20)$ B) $x^2 + 40x + 400$ C) $(x - 20)^2$ D) $(x + 20)^2$

Answer: D

323) $x^2 + 4x + 4$

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

Answer: D

324) $25x^2 - 60x + 36$

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

Answer: D

325) $9x^2 + 30x + 25$

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

Answer: D

326) $3x^2 - 75$

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

Answer: D

327) $(x + 7)^2 - 4$

A) $(x + 9)(x + 5)$ B) $(x - 5)(x - 9)$ C) $(x + 11)(x + 3)$ D) $x^2 + 14x + 45$

Answer: A

328) $(x - 8)^2 - 9$

A) $(x + 5)(x + 11)$ B) $(x + 1)(x - 17)$ C) $(x - 5)(x - 11)$ D) $(x - 11)^2$

Answer: C

329) $(4x - 1)^3 + 216$

A) $(4x - 7)(16x^2 + 16x + 31)$ B) $(4x + 5)(16x^2 + 16x + 31)$

C) $(4x + 5)(16x^2 - 32x + 43)$ D) $(4x + 5)(16x^2 + 16x + 43)$

Answer: C

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330) $(9 - x)^3 - x^3$

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

C) $(9 + 2x)(x^2 - 9x + 81)$ D) $(9 - 2x)(3x^2 - 9x + 81)$

Answer: A

331) $27x^2 - 36x + 12$

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

Answer: A

332) $x^3 + 24x^2 + 144x$

A) $x(x + 12)(x - 12)$ B) $x(x - 12)^2$ C) $x(x + 12)^2$ D) prime

Answer: C

333) $x^4 + 4x^2 + 4$

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

Answer: C

Simplify the rational expression.

334) $\dfrac{x^2 - 36}{x - 6}$

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

Answer: D

335) $\dfrac{2x + 2}{10x^2 + 16x + 6}$

A) $\dfrac{2x + 2}{10x^2 + 16x + 6}$ B) $\dfrac{2x + 5}{5x + 16}$ C) $\dfrac{1}{5x + 3}$ D) $\dfrac{2x}{5x + 3}$

Answer: C

336) $\dfrac{y^2 + 7y + 12}{y^2 + 9y + 20}$

A) $\dfrac{7y + 12}{9y + 20}$ B) $\dfrac{7y + 3}{9y + 5}$ C) $-\dfrac{y^2 + 7y + 12}{y^2 + 9y + 20}$ D) $\dfrac{y + 3}{y + 5}$

Answer: D

337) $\dfrac{3x^2 - 22x + 35}{x - 5}$

A) $\dfrac{1}{x - 5}$ B) $3x^2 - 29$ C) $3x - 7$ D) $\dfrac{3x^2 - 22x + 35}{x - 5}$

Answer: C

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338) $\frac{x^2 + 12x + 32}{x^2 + 16x + 64}$

A) $\frac{12x + 32}{16x + 64}$ B) $-\frac{x^2 + 12x + 32}{x^2 + 16x + 64}$ C) $\frac{12x + 1}{16x + 2}$ D) $\frac{x + 4}{x + 8}$

Answer: D

339) $\frac{3x^2 - 7x - 20}{2x^2 - 5x - 12}$

A) $\frac{x - 5}{x - 3}$ B) $\frac{x + 6}{x + 4}$ C) $\frac{3x + 5}{2x + 3}$ D) $\frac{3x - 4}{2x + 4}$

Answer: C

340) $\frac{8x^2 + 24x^3}{9x + 27x^2}$

A) $\frac{8}{9}$ B) $\frac{8 + 24x^3}{9x + 27}$ C) $\frac{8x}{9}$ D) $\frac{8x^2 + 24x^3}{9x + 27x^2}$

Answer: C

341) $\frac{y^3 - 27}{y - 3}$

A) $\frac{y^3 - 27}{y - 3}$ B) $y^2 - 9$ C) $y^2 + 3y + 9$ D) $\frac{1}{y - 3}$

Answer: C

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

342) $\frac{3x}{6x + 3} \cdot \frac{14x + 7}{4}$

A) $\frac{7x}{12}$ B) $\frac{x}{4}$ C) $\frac{7}{4}$ D) $\frac{7x}{4}$

Answer: D

343) $\frac{4x - 4}{x} \cdot \frac{2x^2}{5x - 5}$

A) $\frac{8x^3 - 8x^2}{5x^2 - 5x}$ B) $\frac{20x^2 + 40x + 20}{2x^3}$ C) $\frac{8x}{5}$ D) $\frac{5}{8x}$

Answer: C

344) $\frac{x^3 + 1}{x^3 - x^2 + x} \cdot \frac{12x}{-84x - 84}$

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

Answer: A

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345) $\frac{x^2+13x+36}{x^2+15x+54} \cdot \frac{x^2+14x+48}{x^2+12x+32}$

A) $\frac{x+4}{x+6}$ B) $\frac{x+6}{x+8}$ C) $\frac{1}{x+8}$ D) 1

Answer: D

346) $\frac{x^2-23x+132}{x^2-10x+16} \cdot \frac{x^2-9x+8}{x^2-18x+77}$

A) $\frac{(x+12)(x+1)}{(x+2)(x+7)}$ B) $\frac{(x^2-23x+132)(x^2-9x+8)}{(x^2-10x+16)(x^2-18x+77)}$

C) $\frac{(x-12)}{(x-7)}$ D) $\frac{(x-12)(x-1)}{(x-2)(x-7)}$

Answer: D

347) $\frac{x^2+12x+35}{x^2+14x+45} \cdot \frac{x^2+9x}{x^2+4x-21}$

A) $\frac{x}{x-3}$ B) $\frac{x}{x^2+14x+45}$ C) $\frac{1}{x-3}$ D) $\frac{x(x+9)}{x-3}$

Answer: A

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

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) $\frac{3x(x-1)}{4}$

Answer: C

349) $\frac{x^2+11x+28}{x^2+13x+42} \cdot \frac{x^2+6x}{x^2+12x+32}$

A) $\frac{x}{x^2+13x+42}$ B) $\frac{x^2+6x}{x+8}$ C) $\frac{x}{x+8}$ D) $\frac{1}{x+8}$

Answer: C

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

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

Answer: C

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351) $\frac{21x - 21}{9} \div \frac{7x - 7}{99}$

A) $\frac{1}{33}$ B) 33 C) $\frac{11(21x - 21)}{7x - 7}$ D) $\frac{147(x - 1)^2}{891}$

Answer: B

352) $\frac{5x - 5}{x} \div \frac{6x - 6}{7x^2}$

A) $\frac{6}{35x}$ B) $\frac{35x^2(x - 1)}{6x(x - 1)}$ C) $\frac{35x}{6}$ D) $\frac{30(x + 1)^2}{7x^3}$

Answer: C

353) $\frac{\frac{x^2 + 10x + 16}{x^2 + 11x + 24}}{\frac{x^2 + 2x}{x^2 + 6x + 9}}$

A) $\frac{x}{(x + 3)(x + 8)}$ B) $x + 3$ C) $\frac{x + 3}{x(x + 3)}$ D) $\frac{x + 3}{x}$

Answer: D

354) $\frac{x^2 - 12x + 36}{3x - 18} \div \frac{11x - 66}{33}$

A) 1 B) 33 C) $\frac{(x - 6)^2}{9}$ D) $\frac{x^2 - 12x + 36}{(x - 6)^2}$

Answer: A

355) $\frac{1}{x + 6} \div \frac{3}{x^2 - 36}$

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

Answer: D

356) $\frac{x^2 - 16}{x} \div \frac{x - 4}{x + 2}$

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

Answer: C

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357) $\frac{25x^2 - 4}{x^2 - 9} \div \frac{5x - 2}{x - 3}$

A) $\frac{(5x - 2)(25x^2 - 4)}{(x^2 - 3)(x - 3)}$ B) $\frac{5x - 2}{x - 3}$ C) $\frac{5x + 2}{x + 3}$ D) $\frac{x + 3}{5x + 2}$

Answer: C

358) $\frac{x}{8} - \frac{15}{7}$

A) $\frac{x - 15}{15}$ B) $\frac{x - 15}{56}$ C) $\frac{7x + 120}{120}$ D) $\frac{7x - 120}{56}$

Answer: D

359) $\frac{2x + 9}{2} - \frac{2x - 9}{2}$

A) 0 B) 9 C) 2x D) 81

Answer: B

360) $\frac{6x^2}{x - 1} - \frac{6x}{x - 1}$

A) 6x B) $\frac{6x}{x - 1}$ C) $\frac{6x(x + 1)}{x - 1}$ D) 0

Answer: A

361) $\frac{9}{11x} - \frac{4}{11x}$

A) $\frac{5}{22x}$ B) 1 C) $\frac{11}{5x}$ D) $\frac{5}{11x}$

Answer: D

362) $\frac{1}{2x} + \frac{1}{5x}$

A) 1 B) $\frac{10}{7x}$ C) $\frac{7}{20x}$ D) $\frac{7}{10x}$

Answer: D

363) $\frac{-6x - 8}{x} + \frac{4x + 7}{3x}$

A) $\frac{-14x + 31}{3x}$ B) $\frac{-14x - 17}{3x}$ C) $\frac{-22x - 17}{3x}$ D) $\frac{-14x - 17}{3x^2}$

Answer: B

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

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

Answer: C

365) $\frac{5}{x} + \frac{7}{x - 4}$

A) $\frac{20x - 12}{x(4 - x)}$ B) $\frac{12x - 20}{x(4 - x)}$ C) $\frac{12x - 20}{x(x - 4)}$ D) $\frac{20x - 12}{x(x - 4)}$

Answer: C

366) $\frac{5}{x + 4} - \frac{2}{x - 4}$

A) $\frac{3x + 28}{(x + 4)(x - 4)}$ B) $\frac{3}{(x + 4)(x - 4)}$ C) $\frac{3x - 12}{(x + 4)(x - 4)}$ D) $\frac{3x - 28}{(x + 4)(x - 4)}$

Answer: D

367) $\frac{21}{x - 4} + \frac{6}{x - 4}$

A) $\frac{21(x - 4)}{6(x - 4)}$ B) $\frac{15}{x}$ C) $\frac{27}{x - 4}$ D) $\frac{15}{x - 4}$

Answer: C

368) $\frac{8x^2}{x - 1} - \frac{8x}{x - 1}$

A) $\frac{8x}{x - 1}$ B) $\frac{8x(x + 1)}{x - 1}$ C) 0 D) 8x

Answer: D

369) $\frac{7 - x}{x - 5} - \frac{2x - 4}{5 - x}$

A) $\frac{x + 3}{x - 5}$ B) $\frac{x + 11}{x - 5}$ C) $-\frac{x + 11}{x - 5}$ D) $-\frac{x + 3}{x - 5}$

Answer: A

370) $\frac{x + 8}{x - 8} - \frac{x + 8}{x + 2}$

A) $\frac{10(x + 8)}{(x - 8)(x + 2)}$ B) 0 C) $\frac{-10(x + 8)}{(x - 8)(x + 2)}$ D) $\frac{-6(x + 8)}{(x - 8)(x + 2)}$

Answer: A

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371) $\frac{7x}{x - 9} + \frac{5}{9 - x}$

A) $\frac{7x - 5}{9 - x}$ B) $\frac{7x - 5}{x - 9}$ C) $\frac{7x + 5}{x - 9}$ D) $\frac{2x}{x - 9}$

Answer: B

372) $\frac{x^2 - 8x}{x - 6} + \frac{12}{x - 6}$

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

Answer: C

373) $\frac{\frac{6}{x} + 6}{\frac{6}{x} - 6}$

A) $6 - x^2$ B) $\frac{x^2}{6 - x^2}$ C) $\frac{6(1 + x)}{1 - x}$ D) $\frac{1 + x}{1 - x}$

Answer: D

374) $\frac{1 - \frac{2}{x}}{1 + \frac{2}{x}}$

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

Answer: C

375) $\frac{\frac{6}{x} + 1}{\frac{6}{x} - 1}$

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

Answer: B

376) $\frac{1 - \frac{1}{x}}{4 + \frac{1}{x}}$

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

Answer: B

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377)

$$\frac{1 - \frac{2}{x}}{x - \frac{4}{x}}$$

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

Answer: A

378)

$$\frac{\frac{x}{25} - \frac{1}{x}}{1 + \frac{5}{x}}$$

A) $\frac{x+5}{25}$ B) $\frac{x - 5}{25}$ C) $\frac{25}{x+5}$ D) $\frac{25}{x - 5}$

Answer: B

379)

$$\frac{4 + \frac{2}{x}}{\frac{x}{3} + \frac{1}{6}}$$

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

Answer: A

380)

$$\frac{\frac{5}{x} + \frac{2}{x^2}}{\frac{25}{x^2} - \frac{4}{x}}$$

A) $\frac{5x^2 + 2}{25 - 4x}$ B) $\frac{1}{5x - 2}$ C) $\frac{5x + 2}{25 - 4x}$ D) $\frac{1}{5 - 2x}$

Answer: C

381)

$$\frac{\frac{5}{x} + 8}{\frac{25}{x^2} - 64}$$

A) $\frac{x}{5 - 8x}$ B) $\frac{1}{5x - 8}$ C) $\frac{1}{5 - 8x}$ D) $\frac{x}{5x - 8}$

Answer: A

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382)

$$\frac{x - \frac{x}{x+9}}{x+8}$$

A) $\frac{x}{x+8}$ B) $\frac{x^2}{x+9}$ C) $\frac{x}{x-9}$ D) $\frac{x}{x+9}$

Answer: D

383)

$$\frac{\frac{3}{7x-1} - 3}{\frac{3}{7x-1} + 3}$$

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

Answer: B

384)

$$\frac{\frac{16}{17-x} + \frac{17}{x-17}}{\frac{9}{x} + \frac{8}{x-17}}$$

A) $\frac{33x}{17x-153}$ B) $\frac{x}{17x-153}$ C) $-\frac{x}{17x-153}$ D) $-\frac{33x}{17x-153}$

Answer: B

385)

$$\frac{\frac{x}{x-2} + 1}{\frac{3}{x^2-4} + 1}$$

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

Answer: C

386)

$$\frac{\frac{3}{x+5} + \frac{6}{x+3}}{\frac{3x+13}{x^2+8x+15}}$$

A) 3 B) $3x+13$ C) $\frac{1}{3}$ D) 9

Answer: A

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387)
$$\frac{\frac{x+9}{x-9}+\frac{x-9}{x+9}}{\frac{x+9}{x-9}-\frac{x-9}{x+9}}$$

A) 1 B) $\frac{(x+9)^2}{18x}$ C) $\frac{(x+9)^3}{36x(x+10)}$ D) $\frac{x^2+81}{18x}$

Answer: D

388)
$$\frac{\frac{1}{x+2}+\frac{1}{x-2}}{\frac{1}{x^2-4}}$$

A) x^2 B) - 4 C) 4 D) 2x

Answer: D

389)
$$\frac{\frac{5}{x^2-3x-40}-\frac{1}{x-8}}{\frac{1}{x+5}+1}$$

A) - 1 B) $-\frac{x}{x^2-3x-40}$ C) $\frac{x}{x^2-4x-48}$ D) $-\frac{x}{x^2-2x-48}$

Answer: D

Solve the problem.

390) The width of a rectangle can be represented by the ratio $\frac{A}{l}$, where A is the area of the rectangle and l is the length.

Suppose that the area of a rectangle is $x^2+2x-15$ square inches and the length of the rectangle is $x+5$ inches.
a. Determine the simplified rational expression that describes the width of the rectangle.
b. What is the width of the rectangle if x = 28 inches?

A) a. $(x+5)$;
b. 33 inches
B) a. $(x-3)$;
b. 25 inches
C) a. $(x-5)$;
b. 23 inches
D) a. $(x+3)$;
b. 31 inches

Answer: B

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391) On a 608 mile road trip, out to Yellowstone National Park Toby's average speed was x miles per hour. On his return trip, he averaged 15 miles per hour more than his trip to the park. The time that it took Toby to drive to the park can be represented by the rational expression $\frac{608}{x}$, while the time it took Toby to return home can be represented by the rational expression $\frac{608}{x+15}$.

a. Write a simplified rational expression that describes the difference in the time it took Toby to drive to the park and the time it took him to return home.
b. What was the difference in the time it took Toby to drive to the park and the time it took him to return home if he averaged 61 miles per hour on his drive home? Round your answer to the nearest tenth .

A) a. $\frac{9120}{x^2+15x}$; b. 3.3 hour(s)
B) a. $\frac{-9120}{x^2+15x}$; b. 3.3 hour(s)
C) a. $\frac{1216x+9120}{x^2+15x}$; b. 3972.2 hour(s)
D) a. $\frac{9120}{x^2-15x}$; b. 1.3 hour(s)

Answer: A

Determine if the given solution is correct. If it is not, find the solution.

392) Is - 5 the solution to - 15 - 2 = x - 10?
A) no; x = - 23
B) no; x = - 27
C) yes
D) no; x = - 7
Answer: D

393) Is - 8 the solution to x + 5 = 4 - 7?
A) no; x = 16
B) no; x = 6
C) yes
D) no; x = 2
Answer: C

394) Is 14 the solution to - 1 + x = 14?
A) no; x =
B) yes
C) no; x = 15
D) no; x = - 15
Answer: C

List the terms of the expression. Then identify the coefficient of each term.

395) $4h^2 - 9h$
A) h^2, h; 4, 9
B) $4h^2$, 9h; 4, 9
C) $4h^2$, - 9h; 4, - 9
D) h^2, h; 4, - 9
Answer: C

396) 3b - 9t
A) b, t; 3, 9
B) - 3b, t; - 3,
C) 3b, - 9t; - 3, 9
D) 3b, - 9t; 3, - 9
Answer: D

397) 4m - 2
A) m; 4, - 2
B) 4m; 4
C) 4m, - 2; 4, 2
D) 4m, - 2; 4, - 2
Answer: D

398) $5w^2 - 2w - ty$
A) $5w^2$, - 2w, - ty; 5, 2, 1
B) $5w^2$, - 2w, - t, y; 5, - 2, - 1, 1
C) $5w^2$, - 2w, - ty; 5, - 2, - 1
D) $5w^2$, 2w, ty; 5, 2, 1
Answer: C

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399) $2y^3 - 4y^2 - y$

A) $2y^3, -4y^2, -y; 2, -4, -1$
B) $2y^3, -4y^2, y; 2, -4, 1$
C) $2y^3, -4y^2, -y; 2, 4, 1$
D) $2y^3, 4y^2, y; 2, 4, 1$

Answer: A

Identify the like terms in the algebraic expression.

400) $7x + 9y - 44y + 35x$

A) 7 and 35; 9 and - 44
B) 7x and 35x; 9y and - 44y
C) 7 and 44; 9 and 35
D) 7x and 9y; - 44y and 35x

Answer: B

401) $3x^2 + 8 - 3x + x^2 - 5$

A) $3x^2, x^2$, and $-3x$; 8 and - 5
B) $3x^2$ and 8; 3x and x^2
C) $3x^2$ and $-3x^2$; 8 and - 5
D) $3x^2$ and x^2; 8 and - 5

Answer: D

402) $63p + 7 - 12q + 3 - 13p$

A) 63p and 13p
B) 63p, - 13p and - 12q; 7 and 3
C) 63p and - 13p; 7 and 3
D) 63p, - 13p and - 12q

Answer: C

403) $5mn - 4m^2 + 3n^2 - 9m^2 + 6mn + 7n^2$

A) 5mn and 6mn; $-4m^2$ and $-9m^2$; $3n^2$ and $7n^2$
B) 5mn and 6mn; $-9n^2$ and $7n^2$
C) 5mn and 6mn; $-4m^2$ and $-9m^2$
D) 5mn and 6mn; $-4m^2$ and $3m^2$; $-9n^2$ and $7n^2$

Answer: A

Determine if the given solution is correct. If it is not, find the solution.

404) Is - 13 the solution to - x = 13

A) no; x = 13
B) yes
C) no; x = 0
D) no; x = - 1

Answer: B

405) Is $\frac{26}{11}$ the solution to 11x = 15

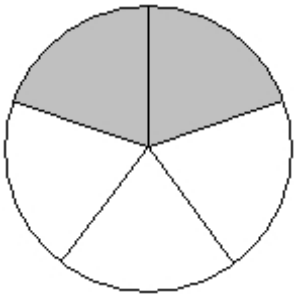
A) yes
B) no; $x = \frac{15}{11}$
C) no; x = 165
D) no; $x = \frac{11}{15}$

Answer: B

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Write a fraction to represent the shaded portion of the figure.

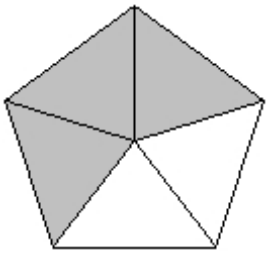
406)



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

Answer: C

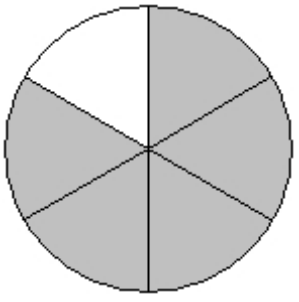
407)



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

Answer: B

408)



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

Answer: A

409)



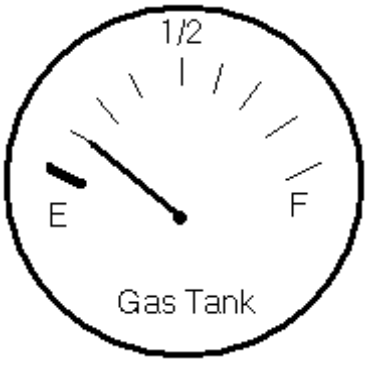
A) $\frac{5}{8}$ B) $\frac{3}{8}$ C) $\frac{3}{5}$ D) $\frac{5}{3}$

Answer: B

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Write a fraction to represent the given information.

410) What fraction of the fuel tank holds fuel?



A) $\frac{5}{8}$ B) $\frac{1}{8}$ C) $\frac{3}{8}$ D) $\frac{2}{8}$

Answer: B

Write a mixed number to represent the measurement shown.

411) Of the 210 students at a college, 57 are juniors. What fraction of the students are juniors?

A) $\frac{153}{57}$ B) $\frac{57}{153}$ C) $\frac{210}{57}$ D) $\frac{57}{210}$

Answer: D

412) Of the 106 teachers at a school, 81 are women. What fraction of the teachers are men?

A) $\frac{25}{81}$ B) $\frac{25}{106}$ C) $\frac{106}{25}$ D) $\frac{81}{25}$

Answer: B

413) According to a recent study, 6 out of 21 visits to a hospital emergency room were for an injury. What fraction of emergency room visits were injury- related?

A) $\frac{15}{6}$ B) $\frac{6}{15}$ C) $\frac{6}{21}$ D) $\frac{21}{6}$

Answer: C

414) According to a recent study, 11 out of 13 visits to a hospital emergency room were for an injury. What fraction of emergency room visits are NOT injury- related?

A) $\frac{2}{11}$ B) $\frac{11}{2}$ C) $\frac{2}{13}$ D) $\frac{13}{2}$

Answer: C

415) In a math class containing 66 students, there are 21 freshman, 11 sophomores, 6 juniors, and 28 seniors. What fraction of the class is NOT juniors?

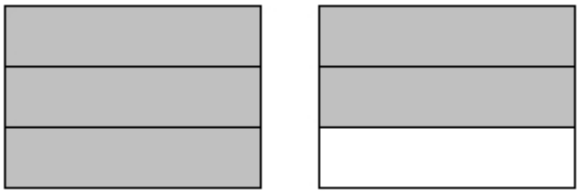
A) $\frac{66}{60}$ B) $\frac{60}{6}$ C) $\frac{3}{4}$ D) $\frac{60}{66}$

Answer: D

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Write both an improper fraction and a mixed number or whole number to represent the shaded portion.

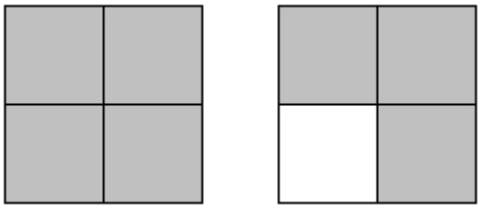
416)



A) $\frac{7}{5}, 1\frac{2}{5}$ B) $\frac{5}{3}, 1\frac{2}{3}$ C) $\frac{6}{5}, 1\frac{1}{6}$ D) $\frac{5}{1}, 5$

Answer: B

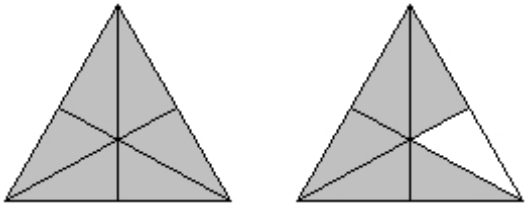
417)



A) $\frac{8}{7}, 1\frac{1}{7}$ B) $\frac{7}{1}, 7$ C) $\frac{9}{7}, 1\frac{2}{7}$ D) $\frac{7}{4}, 1\frac{3}{4}$

Answer: D

418)

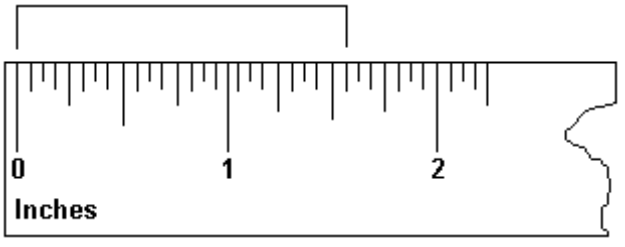


A) $\frac{11}{6}, 1\frac{5}{6}$ B) $\frac{12}{11}, 1\frac{1}{12}$ C) $\frac{13}{11}, 1\frac{2}{11}$ D) $\frac{11}{1}, 11$

Answer: A

Write a mixed number to represent the measurement shown.

419) What part of the inch is highlighted?



A) $1\frac{8}{16}$ B) $1\frac{1}{15}$ C) $1\frac{5}{16}$ D) $1\frac{9}{16}$

Answer: D

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Determine whether the given solution is correct. If it is not, find the solution.

420) Is $-\frac{17}{12}$ the solution for $5x + 9 = -8 - 7x$?

A) No; x = —— B) Yes C) No; x = - 2 D) No; $x = -\frac{12}{17}$

Answer: B

421) Is $\frac{1}{13}$ the solution for $5x + 4 = -9 + 6x$?

A) No; $x = -\frac{11}{5}$ B) Yes C) No; x = 13 D) No; $x = -\frac{1}{13}$

Answer: C

422) Is 5 the solution for $-6x + 7 + 4x = -3x + 12$?

A) No; x = 12 B) No; x = - 7 C) No; x = - 12 D) Yes

Answer: D

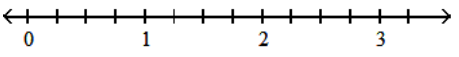
423) Is 9 the solution for $-8x + 4 + 6x = -3x + 9$?

A) No; x = 5 B) No; x = - 4 C) Yes D) No; x = - 9

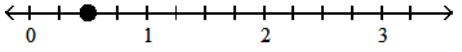
Answer: A

Graph the fraction or mixed number on a number line.

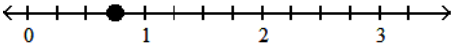
424) $\frac{1}{4}$



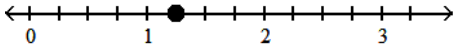
A)



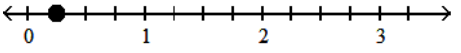
B)



C)

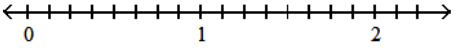


D)

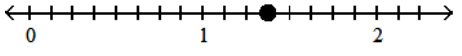


Answer: D

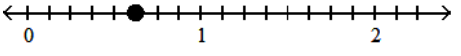
425) $\frac{5}{8}$



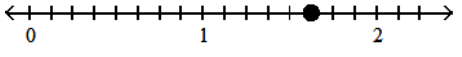
A)



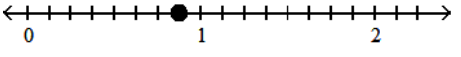
B)



C)



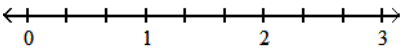
D)



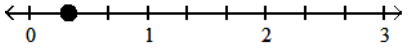
Answer: B

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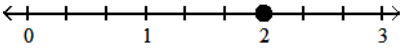
426) $\frac{2}{3}$



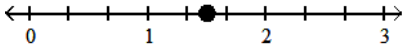
A)



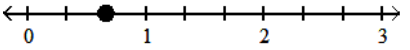
B)



C)

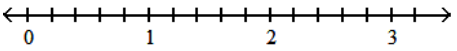


D)

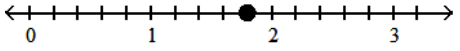


Answer: D

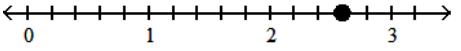
427) $\frac{8}{5}$



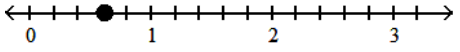
A)



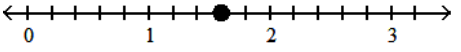
B)



C)

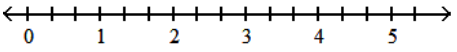


D)

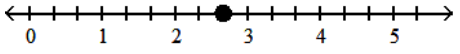


Answer: D

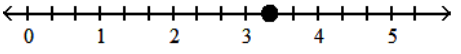
428) $\frac{8}{3}$



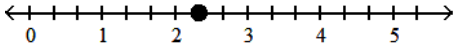
A)



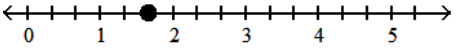
B)



C)



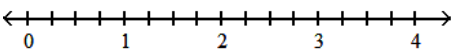
D)



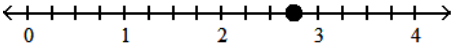
Answer: A

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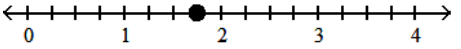
429) $2\frac{3}{4}$



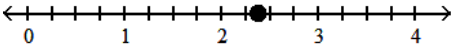
A)



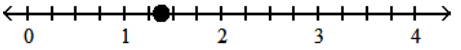
B)



C)



D)



Answer: A

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1) C
2) B
3) D
4) A
5) C
6) D
7) C
8) C
9) D
10) B
11) D
12) A
13) C
14) B
15) B
16) B
17) A
18) D
19) D
20) B
21) A
22) C
23) B
24) D
25) D
26) B
27) D
28) C
29) D
30) C
31) D
32) B
33) B
34) C
35) A
36) A
37) A
38) B
39) C
40) D
41) B
42) A
43) B
44) C
45) B
46) A
47) B
48) C
49) A
50) C

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51) D
52) C
53) A
54) C
55) D
56) D
57) D
58) B
59) C
60) C
61) B
62) B
63) B
64) B
65) D
66) B
67) C
68) B
69) A
70) D
71) C
72) B
73) A
74) A
75) B
76) A
77) D
78) C
79) A
80) C
81) D
82) A
83) D
84) A
85) D
86) B
87) D
88) C
89) D
90) C
91) B
92) D
93) C
94) C
95) A
96) C
97) C
98) D
99) D
100) B

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101) B
102) A
103) B
104) C
105) B
106) D
107) A
108) C
109) C
110) D
111) C
112) B
113) D
114) B
115) C
116) D
117) C
118) D
119) D
120) D
121) D
122) A
123) A
124) C
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126) A
127) D
128) B
129) A
130) B
131) B
132) A
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134) A
135) C
136) B
137) C
138) A
139) A
140) B
141) A
142) B
143) C
144) A
145) D
146) B
147) D
148) D
149) D
150) C

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151) D
152) D
153) C
154) D
155) D
156) C
157) A
158) A
159) B
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187) B
188) A
189) C
190) B
191) D
192) B
193) C
194) C
195) B
196) D
197) A
198) D
199) C
200) A

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201) D
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203) D
204) D
205) A
206) D
207) C
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209) B
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211) C
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243) A
244) D
245) B
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247) D
248) D
249) A
250) D

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251) C
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255) B
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290) D
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293) C
294) B
295) B
296) C
297) D
298) D
299) C
300) C

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301) A
302) B
303) B
304) A
305) A
306) A
307) C
308) A
309) A
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312) D
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314) C
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328) C
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332) C
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334) D
335) C
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337) C
338) D
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340) C
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342) D
343) C
344) A
345) D
346) D
347) A
348) C
349) C
350) C

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351) B
352) C
353) D
354) A
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356) C
357) C
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361) D
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380) C
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385) C
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387) D
388) D
389) D
390) B
391) A
392) D
393) C
394) C
395) C
396) D
397) D
398) C
399) A
400) B

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401) D
402) C
403) A
404) B
405) B
406) C
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408) A
409) B
410) B
411) D
412) B
413) C
414) C
415) D
416) B
417) D
418) A
419) D
420) B
421) C
422) D
423) A
424) D
425) B
426) D
427) D
428) A
429) A

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