Elementary Algebra Graphs and Authentic Applications 3rd edition Lehmann Test Bank

SKU: 9780134756998-TEST-BANK

Exam

Name_____

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

Evaluate the expression for the given value or values.

1) $23 + y$ for $y = 41$ 1) _____
A) 64 B) 37 C) 55 D) 46

2) $x - x$ for $x = 54$ 2) _____
A) 1 B) 0 C) 54 D) –1

3) $x \div 3$ for $x = 150$ 3) _____
A) 52 B) 50 C) 48 D) 53

4) $y \div y$ for $y = 8$ 4) _____
A) –1 B) 1 C) 0 D) 8

5) $0 \div x$ for $x = 232$ 5) _____
A) 232 B) 1 C) 0 D) –1

6) $3x$, for $x = 9$ 6) _____
A) $\frac{3}{9}$ B) 27 C) 12 D) $\frac{9}{3}$

7) $x(5)$, for $x = 3$ 7) _____
A) 15 B) $\frac{3}{5}$ C) 8 D) $\frac{5}{3}$

8) $x + y$ for $x = 31, y = 32$ 8) _____
A) 45 B) 36 C) 63 D) 54

9) $x \div y$ for $x = 236, y = 4$ 9) _____
A) 61 B) 62 C) 57 D) 59

10) xy, for $x = 8, y = 5$ 10) _____
A) $\frac{8}{5}$ B) $\frac{5}{8}$ C) 13 D) 40

11) $x \cdot y$ for $x = 7, y = 36$ 11) _____
A) 223 B) 252 C) 212 D) 352

Solve the problem.

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12) Each ounce of gold is worth $32. 12) _____

(i) Complete the table to find an expression that describes the total value (in dollars) of n ounces of g
Show the arithmetic to help you see a pattern.

(ii) Evaluate the expression you found in part (i) for n =7. What does your result mean in this situati

Number of Ounces and Total Value	
Number of Ounces	Total Value (dollars)
1	
2	
3	
4	
n	

A) (i)

Number of Ounces and Total Value	
Number of Ounces	Total Value (dollars)
1	$32 \cdot 1$
2	$32 \cdot 2$
3	$32 \cdot 3$
4	$32 \cdot 4$
n	32n

(ii) 224; $224 is the total value of 7 ounces of gold priced at $32 per ounce.

B) (i)

Number of Ounces and Total Value	
Number of Ounces	Total Value (dollars)
1	32 + 1
2	32 + 2
3	32 + 3
4	32 + 4
n	32 + n

(ii) 39; $39 is the total value of 7 ounces of gold priced at $32 per ounce.

C) (i)

Number of Ounces and Total Value	
Number of Ounces	Total Value (dollars)
1	$32 \div 1$
2	$32 \div 2$
3	$32 \div 3$
4	$32 \div 4$
n	$32 \div n$

(ii) 4.57; $4.57 is the total value of 7 ounces of gold priced at $32 per ounce.

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D) (i)

Number of Ounces and Total Value	
Number of Ounces	Total Value (dollars)
1	32 – 1
2	32 – 2
3	32 – 3
4	32 – 4
n	32 – n

(ii) 25; $25 is the total value of 7 ounces of gold priced at $32 per ounce.

13) Each customer of a photography studio pays a sitting fee of $10. 13) _____

(i) Complete the table to find an expression that describes the total cost (in dollars) of a photograph package plus the sitting fee if a customer pays p dollars for a photograph package. Show the arithme help you see a pattern.

(ii) Evaluate the expression you found in part (i) for p = 178. What does your result mean in this situ

Cost of Photograph Package and Total Cost	
Cost of Photograph Package	Total Cost (dollars)
105	
106	
107	
108	
p	

A) (i)

Cost of Photograph Package and Total Cost	
Cost of Photograph Package	Total Cost (dollars)
105	105 + 10
106	106 + 10
107	107 + 10
108	108 + 10
p	p + 10

(ii) 17.80; If the photograph package is $178, then the total cost is $17.80.

B) (i)

Cost of Photograph Package and Total Cost	
Cost of Photograph Package	Total Cost (dollars)
105	105 + 10
106	106 + 10
107	107 + 10
108	108 + 10
p	p + 10

(ii) 188; If the photograph package is $178, then the total cost is $188.

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C) (i)

Cost of Photograph Package and Total Cost	
Cost of Photograph Package	Total Cost (dollars)
105	105 + 10
106	106 + 10
107	107 + 10
108	108 + 10
p	p + 10

(ii) 1780; If the photograph package is $178, then the total cost is $1780.

D) (i)

Cost of Photograph Package and Total Cost	
Cost of Photograph Package	Total Cost (dollars)
105	105 + 10
106	106 + 10
107	107 + 10
108	108 + 10
p	p + 10

(ii) 168; If the photograph package is $178, then the total cost is $168.

Let x be a number. Translate the English phrase or sentence into a mathematical expression.

14) The total of 113 and a number 14) _____
A) 113 B) 113 + x C) 113x D) 113 – x

15) The sum of a number and 88 15) _____
A) x + 88 B) 88 C) x – 88 D) 88x

16) 2 times a number 16) _____
A) 2x B) 2 + x C) 2 – x D) 2 ÷ x

17) 5 less than a number 17) _____
A) x + 5 B) x – 5 C) 5 ÷ x D) 5 – x

18) The product of 8 and a number 18) _____
A) 8x B) 8 – x C) 8 ÷ x D) 8 + x

19) Subtract 46 from a number 19) _____
A) 46 – x B) 46x C) x – 46 D) 46

20) The difference of a number and 20 20) _____
A) 20x B) x – 20 C) 20 D) 20 – x

21) 55 decreased by a number 21) _____
A) 55 + x B) 55 ÷ x C) x – 55 D) 55 – x

22) Divide a number by 23 22) _____
A) x ÷ 23 B) x – 23 C) 23x D) 23 ÷ x

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23) The quotient of 20 and a number 23) _____

A) $x \div 20$ B) $20 - x$ C) $20 \div x$ D) $x - 20$

24) A number increased by 67 24) _____

A) $x + 67$ B) $67 \div x$ C) $x - 67$ D) $67x$

25) Nine more than a number 25) _____

A) $x - 9$ B) $9x$ C) $x + 9$ D) $x \div 9$

26) Eight less than a number 26) _____

A) $x - 8$ B) $8x$ C) $8 - x$ D) $x \div 8$

27) Divide a number by eight 27) _____

A) $8 - x$ B) $8 \div x$ C) $8x$ D) $x \div 8$

28) A number decreased by seven 28) _____

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

Let x be a number. Translate the expression into an English phrase.

29) $110 + x$ 29) _____

A) Multiply 110 by a number.
B) Divide 110 by a number.
C) The total of 110 and a number
D) The difference of 110 and a number

30) $x + 103$ 30) _____

A) The quotient of a number and 103
B) The sum of a number and 103
C) The product of a number and 103
D) The difference between a number and 103

31) $2x$ 31) _____

A) 2 minus a number
B) 2 divided by a number
C) 2 times a number
D) 2 plus a number

32) $x - 146$ 32) _____

A) 146 less a number
B) 146 increased by a number
C) 146 plus a number
D) 146 less than a number

33) $8x$ 33) _____

A) The quotient of 8 and a number
B) Divide a number by 8.
C) The product of 8 and a number
D) The sum of 8 and a number

34) $x - 30$ 34) _____

A) Subtract 30 from a number
B) The ratio of 30 and a number
C) 30 multiplied by a number
D) Subtract a number from 30

35) $x - 66$ 35) _____

A) The quotient of a number and 66
B) The sum of a number and 66
C) The difference of 66 and a number
D) The difference of a number and 66

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36) $54 - x$ 36) _____

A) 54 less than a number
B) A number decreased by 54
C) 54 decreased by a number
D) A number less 54

37) $x \div 67$ 37) _____

A) Divide 67 by a number.
B) The quotient of 67 and a number
C) Divide a number by 67
D) The ratio of 67 to a number

38) $77 \div x$ 38) _____

A) The quotient of a number and 77
B) The ratio of a number to 77
C) The quotient of 77 and a number
D) Divide a number by 77.

39) $x + 9$ 39) _____

A) A number multiplied by 9
B) A number decreased by 9
C) A number increased by 9
D) A number divided by 9

40) $x + 1$ 40) _____

A) One times a number
B) One more than a number
C) One divided by a number
D) One less than a number

41) $x - 4$ 41) _____

A) Four more than a number
B) Four less than a number
C) Four minus a number
D) Four decreased by a number

42) $7 \div x$ 42) _____

A) Seven decreased by a number
B) Seven divided by a number
C) Seven multiplied by a number
D) Seven added to a number

43) $x - 5$ 43) _____

A) A number plus five
B) five minus a number
C) A number decreased by five
D) A number increased by five

Solve the problem.

44) Translate the phrase into a mathematical expression then evaluate the expression for $x = 52$ and $y = 31$. 44) _____

The sum of x and y

A) $x + y$; 74 B) $x + y$; 83 C) $x + y$; 65 D) $x + y$; 38

45) Translate the phrase into a mathematical expression then evaluate the expression for $x = 290$ and $y = 5$. 45) _____

The quotient of x and y

A) $x \div y$; 58 B) $x \div y$; 60 C) $x \div y$; 56 D) $x \div y$; 61

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46) Translate the phrase into a mathematical expression then evaluate the expression for x = 7 and y = 4. 46) _____

The product of x and y

A) $y \div x; \frac{4}{7}$ B) xy; 28 C) x + y; 11 D) $x \div y; \frac{7}{4}$

47) For the period 2011 – 2017, if M is the average math SAT score (in points) for a certain year, then the average verbal SAT score (in points) for that year is approximately M + t where t is the number of years since 2011. The average math SAT score was 485 points in 2014. Estimate the average verbal SAT score in 2014. 47) _____

A) 504 points B) 509 points C) 499 points D) 494 points

48) A person drives 56t miles in t hours. 48) _____

(i) Evaluate 56t for t = 1, t = 2, t = 3, and t = 4. Describe the meaning of your results.

(ii) Refer to your results to part (i) to determine at what speed the person is traveling.

A) (i) 56, 28.0, 18.7, 14.0; The person drives 56 miles in 1 hour, 28.0 miles in 2 hours, 18.7 miles in 3 hours, 14.0 miles in 4 hours.
(ii) The person is driving 56 miles per hour.

B) (i) 56, 112, 168, 224; The person drives 56 miles in 1 hour, 112 miles in 2 hours, 168 miles in 3 hours, 224 miles in 4 hours.
(ii) The person is driving 56 miles per hour.

C) (i) 112, 168, 224, 280; The person drives 112 miles in 1 hour, 168 miles in 2 hours, 224 miles in 3 hours, 280 miles in 4 hours.
(ii) The person is driving 56 miles per hour.

D) (i) 57, 58, 59, 60; The person drives 57 miles in 1 hour, 58 miles in 2 hours, 59 miles in 3 hours, 60 miles in 4 hours.
(ii) The person is driving 57 miles per hour.

49) Kevin and Amir share in the profits of a pet supplies store. If the total profit is $70,000 and p is the amount of profit Kevin receives, write an expression for the amount Amir receives. 49) _____

A) p + $70,000 B) $70,000 – p C) $70,000 + p D) p – $70,000

50) Keerti found that he had y nickels in his pocket. Write an expression that represents this quantity of money in cents. 50) _____

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

51) A motorcycle shop maintains an inventory of three times as many new bikes as used bikes so that if n is the number of new bikes, there are n ÷ 3 used bikes at the shop. If there are 75 new bikes, how many used bikes are now in stock? 51) _____

A) 50 used bikes B) 225 used bikes C) 25 used bikes D) 38 used bikes

Write the number as a product of primes.

52) 175 52) _____

A) 25 · 5 B) 7 · 7 C) 5 · 7 D) 5 · 5 · 7

53) 28 53) _____

A) 2 · 7 B) 2 · 7 · 7 C) 2 · 2 · 7 D) 2 · 2

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54) 187 54) _____

A) $12 \cdot 19$ B) $11 \cdot 17$ C) $16 \cdot 13$ D) $11 \cdot 19$

55) 231 55) _____

A) $3 \cdot 7 \cdot 11$ B) $3 \cdot 7 \cdot 11 \cdot 11$ C) $7 \cdot 7 \cdot 3$ D) $3 \cdot 3 \cdot 11$

56) 350 56) _____

A) $5 \cdot 5 \cdot 5 \cdot 7$ B) $2 \cdot 2 \cdot 5 \cdot 7$ C) $2 \cdot 5 \cdot 7$ D) $2 \cdot 5 \cdot 5 \cdot 7$

Simplify.

57) $\frac{2}{8}$ 57) _____

A) 2 B) $\frac{2}{8}$ C) $\frac{1}{2}$ D) $\frac{1}{4}$

58) $\frac{12}{28}$ 58) _____

A) $\frac{4}{7}$ B) $\frac{12}{28}$ C) $\frac{3}{4}$ D) $\frac{3}{7}$

59) $\frac{105}{135}$ 59) _____

A) $\frac{105}{135}$ B) $\frac{7}{9}$ C) $\frac{15}{9}$ D) $\frac{7}{15}$

60) $\frac{30}{50}$ 60) _____

A) $\frac{3}{10}$ B) $\frac{30}{50}$ C) $\frac{3}{5}$ D) $\frac{10}{5}$

61) $\frac{100}{125}$ 61) _____

A) $\frac{4}{25}$ B) $\frac{4}{5}$ C) $\frac{100}{125}$ D) $\frac{25}{5}$

62) $\frac{55}{60}$ 62) _____

A) $\frac{11}{5}$ B) $\frac{11}{12}$ C) $\frac{55}{60}$ D) $\frac{5}{12}$

63) $\frac{45}{42}$ 63) _____

A) $\frac{45}{42}$ B) $\frac{15}{14}$ C) $\frac{14}{15}$ D) $\frac{14}{3}$

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64) $\frac{21}{28}$ 64) _____

A) $\frac{1}{7}$ B) $\frac{7}{4}$ C) $\frac{3}{4}$ D) $\frac{4}{3}$

Perform the indicated operation.

65) $\frac{4}{5} \cdot \frac{1}{9}$ 65) _____

A) $\frac{5}{14}$ B) $\frac{4}{45}$ C) $\frac{5}{36}$ D) $\frac{45}{4}$

66) $\frac{12}{5} \cdot \frac{1}{8}$ 66) _____

A) $\frac{82}{40}$ B) $\frac{1}{10}$ C) $\frac{3}{10}$ D) $\frac{23}{10}$

67) $\frac{49}{12} \cdot 4$ 67) _____

A) 16 B) $\frac{49}{3}$ C) $\frac{46}{3}$ D) $\frac{193}{12}$

68) $\frac{8}{11} \div \frac{9}{11}$ 68) _____

A) $\frac{8}{9}$ B) $\frac{8}{7}$ C) $\frac{6}{9}$ D) $\frac{7}{9}$

69) $\frac{5}{13} \div \frac{7}{11}$ 69) _____

A) $\frac{53}{91}$ B) $\frac{54}{91}$ C) $\frac{55}{89}$ D) $\frac{55}{91}$

70) $\frac{6}{12} \div \frac{5}{9}$ 70) _____

A) $\frac{108}{5}$ B) $\frac{9}{10}$ C) $\frac{11}{21}$ D) $\frac{5}{108}$

71) $\frac{6}{35} \div \frac{15}{14}$ 71) _____

A) $\frac{4}{35}$ B) $\frac{4}{15}$ C) $\frac{28}{175}$ D) $\frac{4}{25}$

72) $\frac{6}{5} \div \frac{2}{5}$ 72) _____

A) 3 B) $\frac{3}{2}$ C) 2 D) 4

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73) $\frac{70}{9} \div 10$ 73) _____

A) $\frac{7}{8}$ B) $\frac{8}{9}$ C) $\frac{7}{9}$ D) $\frac{6}{9}$

Add or subtract. Simplify the answer.

74) $\frac{3}{10} + \frac{7}{10}$ 74) _____

A) $\frac{1}{2}$ B) 1 C) $\frac{10}{10}$ D) $\frac{10}{20}$

75) $\frac{1}{9} + \frac{7}{9}$ 75) _____

A) $\frac{8}{9}$ B) $\frac{7}{9}$ C) $\frac{9}{10}$ D) $\frac{7}{8}$

76) $\frac{3}{11} + \frac{7}{11}$ 76) _____

A) $\frac{9}{11}$ B) $\frac{11}{12}$ C) $\frac{9}{10}$ D) $\frac{10}{11}$

77) $\frac{4}{8} - \frac{3}{8}$ 77) _____

A) $\frac{1}{8}$ B) $\frac{1}{4}$ C) $\frac{3}{16}$ D) $\frac{1}{2}$

78) $\frac{7}{12} - \frac{5}{12}$ 78) _____

A) $\frac{2}{0}$ B) $\frac{2}{24}$ C) $\frac{1}{6}$ D) $\frac{2}{12}$

79) $\frac{44}{40} - \frac{19}{40}$ 79) _____

A) $\frac{5}{8}$ B) $\frac{209}{10}$ C) $\frac{5}{16}$ D) $\frac{63}{40}$

80) $\frac{9}{16} + \frac{5}{16}$ 80) _____

A) $\frac{3}{4}$ B) $\frac{7}{8}$ C) $\frac{6}{7}$ D) $\frac{8}{9}$

81) $\frac{19}{86} + \frac{17}{86}$ 81) _____

A) $\frac{18}{43}$ B) $\frac{19}{44}$ C) $\frac{17}{42}$ D) $\frac{17}{43}$

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82) $\frac{1}{9} + \frac{3}{8}$ 82) _____

A) $\frac{35}{17}$ B) $\frac{35}{72}$ C) $\frac{4}{17}$ D) $\frac{4}{72}$

83) $\frac{7}{9} - \frac{3}{5}$ 83) _____

A) $\frac{8}{45}$ B) $\frac{4}{45}$ C) $\frac{8}{9}$ D) $\frac{4}{9}$

84) $\frac{1}{8} - \frac{1}{11}$ 84) _____

A) $\frac{1}{8}$ B) $\frac{3}{8}$ C) $\frac{1}{88}$ D) $\frac{3}{88}$

85) $\frac{7}{9} + \frac{2}{5}$ 85) _____

A) $\frac{53}{45}$ B) $\frac{9}{14}$ C) $\frac{73}{45}$ D) $\frac{1}{5}$

86) $\frac{7}{9} - \frac{2}{4}$ 86) _____

A) $\frac{10}{9}$ B) $\frac{5}{36}$ C) $\frac{5}{18}$ D) $\frac{5}{9}$

87) $\frac{1}{6} + \frac{1}{12}$ 87) _____

A) $\frac{1}{4}$ B) $\frac{1}{6}$ C) $\frac{1}{9}$ D) $\frac{19}{72}$

88) $\frac{5}{9} - \frac{1}{21}$ 88) _____

A) $\frac{4}{63}$ B) $\frac{32}{63}$ C) $\frac{32}{189}$ D) $\frac{34}{63}$

89) $\frac{7}{20} - \frac{2}{15}$ 89) _____

A) $\frac{1}{12}$ B) $\frac{13}{60}$ C) $\frac{19}{60}$ D) $\frac{13}{300}$

90) $\frac{5}{18} + \frac{1}{12}$ 90) _____

A) $\frac{1}{6}$ B) $\frac{13}{30}$ C) $\frac{11}{36}$ D) $\frac{13}{36}$

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91) $\frac{12}{7} - \frac{8}{35}$ 91) _____

A) $\frac{52}{35}$ B) $\frac{4}{35}$ C) $\frac{52}{245}$ D) $\frac{52}{7}$

92) $5 + \frac{1}{5}$ 92) _____

A) $\frac{51}{5}$ B) $\frac{26}{5}$ C) $\frac{6}{5}$ D) 1

93) $3 - \frac{3}{8}$ 93) _____

A) $\frac{13}{8}$ B) $\frac{21}{8}$ C) $-\frac{27}{8}$ D) $\frac{23}{8}$

94) $\frac{19}{5} - 3$ 94) _____

A) $\frac{16}{5}$ B) $\frac{92}{5}$ C) 16 D) $\frac{4}{5}$

95) $11 - \frac{8}{7}$ 95) _____

A) 2 B) $\frac{85}{7}$ C) $\frac{69}{7}$ D) $\frac{3}{7}$

Perform the indicated operation. If the fraction is undefined, say so.

96) $\frac{27}{27}$ 96) _____

A) 0 B) 1 C) $\frac{1}{27}$ D) 27

97) $\frac{29}{1}$ 97) _____

A) 28 B) $\frac{1}{29}$ C) 29 D) undefined

98) $\frac{0}{29}$ 98) _____

A) 29 B) $\frac{1}{29}$ C) 0 D) undefined

99) $\frac{24}{0}$ 99) _____

A) $\frac{1}{24}$ B) 24 C) 0 D) undefined

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100) $\frac{121}{1}$ 100) _____

A) 121 B) $\frac{1}{121}$ C) 0 D) undefined

101) $\frac{275}{0}$ 101) _____

A) 1 B) 0 C) $\frac{1}{13}$ D) undefined

102) $\frac{6122}{6122}$ 102) _____

A) 0 B) 1 C) $\frac{1}{9122}$ D) undefined

103) $\frac{119}{121} \cdot \frac{121}{119}$ 103) _____

A) 1 B) 121 C) 0 D) undefined

104) $\frac{111}{119} - \frac{111}{119}$ 104) _____

A) 1 B) 0 C) $\frac{1}{119}$ D) undefined

Evaluate the expression for the given value or values.

105) $\frac{y}{z}$, for $y = 42$ and $z = 6$ 105) _____

A) 6 B) –6 C) –7 D) 7

106) $\frac{x}{3} + \frac{y}{3}$ for $x = 21$, $y = 27$ 106) _____

A) 30 B) 16 C) 34 D) 48

107) $\frac{x}{w} \div \frac{y}{z}$ for $w = 4$, $x = 3$, $y = 4$ and $z = 12$ 107) _____

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

108) $\frac{y}{z} \cdot \frac{w}{x}$ for $w = 6$, $x = 7$, $y = 2$ and $z = 42$ 108) _____

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

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109) $\frac{x}{w} - \frac{y}{z}$ for w = 9, x = 5, y = 4 and z = 45 109) _____

A) $\frac{21}{5}$ B) $\frac{29}{45}$ C) $\frac{7}{15}$ D) $\frac{7}{3}$

Use a calculator to compute. Round the result to two decimal places.

110) $\frac{2}{56} \cdot \frac{5}{28}$ 110) _____

A) 0.01 B) 0.53 C) 0.09 D) 0.06

111) $\frac{11}{13} \cdot \frac{16}{25}$ 111) _____

A) 0.08 B) 0.54 C) 0.71 D) 4.63

112) $\frac{24}{35} \div \frac{28}{45}$ 112) _____

A) 7.71 B) 1.00 C) 1.10 D) 54

113) $\frac{225}{346} - \frac{116}{505}$ 113) _____

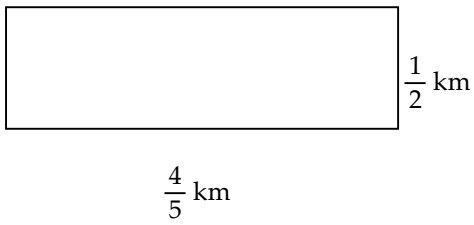
A) 0.88 B) 0.69 C) 0.42 D) 0.00

114) $\frac{780}{937} + \frac{457}{865}$ 114) _____

A) 0.00 B) 1.36 C) 1.39 D) 0.69

Solve the problem.

115) A rectangular plot of land has a length of $\frac{4}{5}$ km and a width of $\frac{1}{2}$ km. What is the area of this plot? 115) _____



A) $\frac{2}{5}$ square km B) $\frac{4}{10}$ square km C) $\frac{4}{7}$ square km D) $\frac{5}{7}$ square km

116) A piece of cheese weighing $\frac{2}{9}$ pound is to be divided into 6 equal portions. What will be the weight each portion? 116) _____

A) 27 lb B) $\frac{4}{3}$ lb C) $\frac{1}{3}$ lb D) $\frac{1}{27}$ lb

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117) A tutor charges $41 for a tutoring session that lasts for t hours. Complete the table to help find an expression that describes the cost (in dollars) per hour. (Show the arithmetic in order to see a patterr 117) _____

Total Time (hours)	Cost per Hour (dollars per hour)
2	
3	
4	
5	
t	

A)

Total Time (hours)	Cost per Hour (dollars per hour)
2	$2 \cdot 41$
3	$3 \cdot 41$
4	$4 \cdot 41$
5	$5 \cdot 41$
t	$t \cdot 41$

B)

Total Time (hours)	Cost per Hour (dollars per hour)
2	$\frac{2}{41}$
3	$\frac{3}{41}$
4	$\frac{4}{41}$
5	$\frac{5}{41}$
t	$\frac{t}{41}$

C)

Total Time (hours)	Cost per Hour (dollars per hour)
2	$\frac{41}{2}$
3	$\frac{41}{3}$
4	$\frac{41}{4}$
5	$\frac{41}{5}$
t	$\frac{41}{t}$

D)

Total Time (hours)	Cost per Hour (dollars per hour)
2	2 + 41
3	3 + 41
4	4 + 41
5	5 + 41
t	t + 41

Solve. Simplify the answer.

118) Barat walked $\frac{6}{18}$ mile to his biology class, $\frac{3}{18}$ mile to his art class, $\frac{6}{18}$ mile to his calculus class, and then back to his dormitory. If he walked 1 mile altogether, how far did he walk from his calculus class to his dormitory? 118) _____

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

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119) Erika spent $\frac{5}{6}$ hr on her computer visiting the History Channel and the Discovery Channel websites. She spent $\frac{1}{5}$ hr at the History Channel website. How many hours did she spend at the Discovery Channel website? 119) _____

A) $\frac{3}{5}$ hr B) $\frac{2}{15}$ hr C) $\frac{19}{30}$ hr D) $\frac{4}{5}$ hr

120) The probability that an event does not occur may be found by subtracting the probability that the event does occur from 1. If the probability that Luis passes his driving test is $\frac{5}{9}$, what is the probability that he does not pass his driving test? 120) _____

A) $\frac{1}{9}$ B) $\frac{1}{5}$ C) $\frac{9}{5}$ D) $\frac{4}{9}$

121) The front cover of a book measures $\frac{17}{2}$ inches by $\frac{31}{5}$ inches. What is the total distance around (the perimeter of) the front cover of the book? 121) _____

A) $\frac{146}{5}$ in. B) $\frac{147}{10}$ in. C) $\frac{143}{5}$ in. D) $\frac{147}{5}$ in.

Compute.

122) $-(-19)$ 122) _____

A) 1 B) 19 C) -19 D) $\frac{1}{19}$

123) $-(-21)$ 123) _____

A) $\frac{1}{21}$ B) 21 C) -21 D) 1

124) $-(-29)$ 124) _____

A) $-\frac{1}{29}$ B) 0 C) 29 D) -29

125) $-(-(-19))$ 125) _____

A) 19 B) $\frac{1}{19}$ C) 0 D) -19

126) $|3|$ 126) _____

A) $-\frac{1}{3}$ B) 3 C) -3 D) 0

127) $|-14|$ 127) _____

A) 0 B) 14 C) -14 D) $-\frac{1}{14}$

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128) $|-17|$ 128) _____

A) 0 B) 17 C) -17 D) $-\frac{1}{17}$

129) $-|18|$ 129) _____

A) -18 B) $\frac{1}{18}$ C) 0 D) 18

130) $-|20|$ 130) _____

A) -20 B) $-\frac{1}{20}$ C) 0 D) 20

131) $-|-25|$ 131) _____

A) 0 B) $-\frac{1}{25}$ C) -25 D) 25

Find the sum.

132) $7 + (-12)$ 132) _____

A) 19 B) 5 C) -19 D) -5

133) $-11 + 13$ 133) _____

A) 24 B) 2 C) -24 D) -2

134) $-14 + (-7)$ 134) _____

A) 7 B) 21 C) -21 D) -7

135) $4 + (-8)$ 135) _____

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

136) $-10 + 21$ 136) _____

A) -31 B) 11 C) 31 D) -11

137) $-4 + (-13)$ 137) _____

A) -17 B) -9 C) 9 D) 17

138) $42 + (-13)$ 138) _____

A) -55 B) -29 C) 29 D) 55

139) $-40 + 35$ 139) _____

A) -75 B) 75 C) 5 D) -5

140) $-29 + (-36)$ 140) _____

A) 7 B) -65 C) 65 D) -7

141) $14 + (-14)$ 141) _____

A) 28 B) 14 C) 0 D) -14

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142) $-14 + (-14)$ 142) _____
A) -28 B) 0 C) -14 D) 28

143) $59 + (-12)$ 143) _____
A) 71 B) 47 C) -71 D) -47

144) $-64 + 94$ 144) _____
A) 158 B) -30 C) -158 D) 30

145) $-82 + (-21)$ 145) _____
A) -61 B) 61 C) -103 D) 103

146) $57 + (-143)$ 146) _____
A) 86 B) -200 C) -86 D) 200

147) $-80 + 148$ 147) _____
A) -68 B) -228 C) 68 D) 228

148) $-62 + (-145)$ 148) _____
A) -207 B) 207 C) -83 D) 83

149) $-595 + (-1701)$ 149) _____
A) 1106 B) -1106 C) 2296 D) -2296

150) $-373 + 747$ 150) _____
A) 274 B) 374 C) -1120 D) -374

151) $-747 + 575$ 151) _____
A) 172 B) -1322 C) -172 D) 72

152) $-392 + (-736)$ 152) _____
A) -244 B) 344 C) -1128 D) -344

153) $50{,}924 + (-50{,}924)$ 153) _____
A) -24 B) 0 C) 101,848 D) $-101{,}848$

154) $-14.8 + (-23.6)$ 154) _____
A) -8.8 B) -38.4 C) 8.8 D) 38.4

155) $3.7 + (-2.6)$ 155) _____
A) 6.3 B) -1.1 C) -6.3 D) 1.1

156) $5.9 + (-9.7)$ 156) _____
A) -15.6 B) 15.6 C) 3.8 D) -3.8

157) $-6.3 + 15.0$ 157) _____
A) 8.7 B) -21.3 C) 21.3 D) -8.7

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158) $-8.8 + (-2.4)$ 158) _____

A) -6.4 B) 6.4 C) 11.2 D) -11.2

159) $\frac{2}{5} + \left(-\frac{1}{5}\right)$ 159) _____

A) $-\frac{1}{5}$ B) $\frac{3}{5}$ C) $-\frac{3}{5}$ D) $\frac{1}{5}$

160) $-\frac{1}{5} + \frac{9}{10}$ 160) _____

A) $-\frac{7}{10}$ B) $\frac{11}{10}$ C) $\frac{7}{10}$ D) $-\frac{11}{10}$

161) $-\frac{3}{10} + \left(-\frac{9}{10}\right)$ 161) _____

A) $-\frac{6}{5}$ B) $-\frac{3}{5}$ C) $\frac{3}{5}$ D) $\frac{6}{5}$

162) $\frac{3}{14} + \left(-\frac{3}{14}\right)$ 162) _____

A) 0 B) $\frac{3}{7}$ C) $\frac{6}{7}$ D) $-\frac{3}{7}$

163) $-\frac{1}{4} + \left(-\frac{1}{3}\right)$ 163) _____

A) $\frac{1}{12}$ B) $-\frac{5}{18}$ C) $-\frac{7}{12}$ D) $-\frac{5}{6}$

Use a calculator to find the sum. Round the result to two decimal places.

164) $821.77 + (-75.11)$ 164) _____

A) -746.66 B) 746.77 C) 746.66 D) 896.88

165) $-38.55 + (-12.48)$ 165) _____

A) 51.03 B) 26.07 C) -26.07 D) -51.03

166) $-6.39 + 36.83$ 166) _____

A) -43.22 B) -30.44 C) 43.22 D) 30.44

167) $-108.23 + 36.67$ 167) _____

A) -70.56 B) -71.56 C) -144.90 D) 131.00

168) $-123.89 + (-41.37)$ 168) _____

A) -165.26 B) 165.26 C) -82.52 D) 82.52

169) $-11{,}044.77 + (-96{,}365.04)$ 169) _____

A) $107{,}409.81$ B) $-107{,}409.81$ C) $-85{,}320.27$ D) $85{,}320.27$

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170) $\frac{251}{330} + \left(-\frac{112}{515}\right)$ 170) _____

A) 0.98 B) 0.54 C) −0.75 D) 0.16

171) $-\frac{751}{988} + \left(-\frac{425}{842}\right)$ 171) _____

A) −8.05 B) −1.26 C) −0.64 D) 1.26

Find the difference.

172) x + y, for x = 9 and y = −4 172) _____

A) 5 B) −36 C) −13 D) 13

173) y + x, for x = −9 and y = 6 173) _____

A) 15 B) −54 C) −15 D) −3

174) a + b, for a = 4 and b = −2 174) _____

A) 6 B) −2 C) 2 D) −6

175) b + a, for a = −8 and b = 0 175) _____

A) 8 B) 0 C) −8 D) −80

176) c + d, for c = −9 and d = −5 176) _____

A) 14 B) 4 C) −4 D) −14

177) d + c, for c = −5 and d = 3 177) _____

A) 8 B) −2 C) 2 D) −8

Let x be a number. Translate the English phrase into a mathematical expression.

178) The total of −45 and a number 178) _____

A) 45 − x B) −45 C) −45 + x D) −45x

179) The sum of a number and −25 179) _____

A) −25x B) x + 25 C) −25 D) x + (−25)

180) −61 increased by a number 180) _____

A) −61 + x B) x + 61 C) −61 ÷ x D) −61x

Solve the problem.

181) A check register is shown in the table below. Find the final balance of the checking account. 181) _____

Check Register

Check Number	Date	Description of Transaction	Payment	Deposit	Balance
					5.08
	12/20	Paycheck		763.03	
1752	12/22	Petcom	38.98		
1753	12/22	Park & Shop	233.97		
	1/02	ATM	150.00		
	1/09	Rebate		18.63	

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A)

Check Register					
Check Number	Date	Description of Transaction	Payment	Deposit	Balance
					5.08
	12/20	Paycheck		763.03	768.11
1752	12/22	Petcom	38.98		729.13
1753	12/22	Park & Shop	233.97		495.16
	1/02	ATM	150.00		345.16
	1/09	Rebate		18.63	363.79

The final balance of the checking account is 363.79 dollars.

B)

Check Register					
Check Number	Date	Description of Transaction	Payment	Deposit	Balance
					5.08
	12/20	Paycheck		763.03	768.11
1752	12/22	Petcom	38.98		729.13
1753	12/22	Park & Shop	233.97		495.16
	1/02	ATM	150.00		345.16
	1/09	Rebate		18.63	326.53

The final balance of the checking account is 326.53 dollars.

C)

Check Register					
Check Number	Date	Description of Transaction	Payment	Deposit	Balance
					5.08
	12/20	Paycheck		763.03	–757.95
1752	12/22	Petcom	38.98		–718.97
1753	12/22	Park & Shop	233.97		–485.00
	1/02	ATM	150.00		–335.00
	1/09	Rebate		18.63	–353.63

The final balance of the checking account is –353.63 dollars.

D)

Check Register					
Check Number	Date	Description of Transaction	Payment	Deposit	Balance
					5.08
	12/20	Paycheck		763.03	768.11
1752	12/22	Petcom	38.98		807.09
1753	12/22	Park & Shop	233.97		1041.06
	1/02	ATM	150.00		1191.06
	1/09	Rebate		18.63	1209.69

The final balance of the checking account is 1209.69 dollars.

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182) A pet store is offering a sale of $10 off the retail price of any of its pet beds or pet carriers. 182) _____

(i) Complete the table below to help find an expression that describes the sale price (in dollars) if the price is r dollars. Show the arithmetic to help you see a pattern.
(ii) Evaluate the expression you found in part (i) for r = 58. What does your result mean in this situat

Retail and Sale Prices	
Retail Price (dollars)	Sale Price (dollars)
50	
55	
60	
65	
r	

A) (i)

Retail and Sale Prices	
Retail Price (dollars)	Sale Price (dollars)
50	50 + (−10)
55	55 + (−10)
60	60 + (−10)
65	65 + (−10)
r	r + (−10)

(ii) 58 + (−10) = 48; This means that if the pet bed or pet carrier was originally retail priced at $58, it would be on sale for $48.

B) (i)

Retail and Sale Prices	
Retail Price (dollars)	Sale Price (dollars)
50	50 + (−10)
55	55 + (−15)
60	60 + (−20)
65	65 + (−25)
r	r + (−30)

(ii) 58 + (−30) = 28; This means that if the pet bed or pet carrier was originally retail priced at $58, it would be on sale for $28.

C) (i)

Retail and Sale Prices	
Retail Price (dollars)	Sale Price (dollars)
50	50 + 10
55	55 + 10
60	60 + 10
65	65 + 10
r	r + 10

(ii) 58 + 10 = 68; This means that if the pet bed or pet carrier was originally retail priced at $58, it would be now cost $68.

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D) (i)

Retail and Sale Prices	
Retail Price (dollars)	Sale Price (dollars)
50	50 + (−10)
55	55 + (−20)
60	60 + (−30)
65	65 + (−40)
r	r + (−50)

(ii) 58 + (−50) = 8; This means that if the pet bed or pet carrier was originally retail priced at $58, it would be on sale for $8.

183) On part of a scenic tour of underground caves, Dave and Neil started at an elevation of −42 feet. They then rose 19 feet. What was their elevation at this point? 183) _____
A) 23 ft B) 61 ft C) −61 ft D) −23 ft

184) Sean has $199 in his savings account. After he withdraws $84, what will his balance be? 184) _____
A) −$115 B) −$283 C) $283 D) $115

185) Mr Lu Yi owed $108 on his bank credit card. He charged another item costing $16 . Find the amount that Lu Yi owed the bank. 185) _____
A) $90 B) $124 C) $92 D) $127

186) At the start of a chemistry experiment, Sarah measured the temperature of a liquid to be −14°C. At the end of the experiment, it had risen 32°C. What was the liquid's temperature at the end of the experiment? 186) _____
A) −18°C B) 46°C C) −46°C D) 18°C

187) The temperature at 5:00 was −5°C. Four hours later, it was −12°C. What was the change in temperature? 187) _____
A) −7°C B) 17°C C) 7°C D) −17°C

188) A corporation's bank account has $7918 in it when the treasurer writes checks for $5632, $1224, and $4946. Then deposits of $4025 and $954 are made. How much is in the account? Is it overdrawn? 188) _____
A) $1095, no B) −$14,741, yes C) $6041, no D) $14,741, no

Find the difference.

189) 12 − 9 189) _____
A) 3 B) −3 C) 13 D) 21

190) −4 − 13 190) _____
A) 17 B) −9 C) 9 D) −17

191) −15 − (−12) 191) _____
A) 3 B) −3 C) 27 D) −27

192) 11 − (−4) 192) _____
A) 7 B) −15 C) 15 D) −7

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193) 8 – 8 193) _____
A) 8 B) 1 C) 0 D) –8

194) 0 – 11 194) _____
A) –11 B) 11 C) –(–11) D) 0

195) –3 – 3 195) _____
A) 6 B) –3 C) –6 D) 0

196) –4 – (–4) 196) _____
A) –4 B) 4 C) 1 D) 0

197) 0 – (–7) 197) _____
A) 14 B) –7 C) 0 D) 7

198) 3 – (–3) 198) _____
A) 6 B) 3 C) –6 D) 0

199) –9 – 20 199) _____
A) 11 B) –11 C) –29 D) 29

200) –7 – (–22) 200) _____
A) –15 B) –29 C) 15 D) 29

201) –70 – 90 201) _____
A) –20 B) 160 C) –160 D) 20

202) –20 – (– 40) 202) _____
A) –20 B) 20 C) –60 D) 60

203) 357 – (–972) 203) _____
A) 615 B) 1329 C) –615 D) –1329

204) 727 – 154 204) _____
A) –881 B) –573 C) 473 D) 573

205) – 274 – 735 205) _____
A) 461 B) –461 C) –1009 D) –361

206) – 481 – (–955) 206) _____
A) –374 B) –474 C) 474 D) –1436

207) –595 – (–486) 207) _____
A) 1081 B) –1081 C) 109 D) –109

208) –193 – 536 208) _____
A) –243 B) –343 C) –729 D) 343

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209) $-15.5 - (-3.7)$ 209) _____

A) 19.2 B) −11.8 C) 11.8 D) −19.2

210) $-15.9 - 4.7$ 210) _____

A) −11.2 B) 20.6 C) 11.2 D) −20.6

211) $7.1 - 18.5$ 211) _____

A) −11.4 B) 25.6 C) −25.6 D) 11.4

212) $-36.14 - (-11.88)$ 212) _____

A) 48.02 B) 24.26 C) −24.26 D) −48.02

213) $(-0.87) - (0.29)$ 213) _____

A) 0.68 B) −1.16 C) 0.58 D) −0.2523

214) $0.80 - (-0.19)$ 214) _____

A) 0.61 B) 1.09 C) 0.99 D) 0.152

215) $-\frac{3}{5} - \frac{1}{20}$ 215) _____

A) $-\frac{4}{25}$ B) $-\frac{1}{5}$ C) $-\frac{33}{50}$ D) $-\frac{13}{20}$

216) $\frac{5}{8} - \frac{2}{5}$ 216) _____

A) $\frac{9}{40}$ B) $\frac{3}{8}$ C) $\frac{3}{40}$ D) $\frac{9}{8}$

217) $\frac{1}{4} - \left(-\frac{1}{3}\right)$ 217) _____

A) $-\frac{1}{8}$ B) $-\frac{7}{12}$ C) $-\frac{1}{12}$ D) $\frac{7}{12}$

218) $-\frac{4}{7} - \frac{8}{9}$ 218) _____

A) $-\frac{20}{63}$ B) $\frac{92}{63}$ C) $-\frac{4}{21}$ D) $-\frac{92}{63}$

219) $-\frac{1}{2} - \left(-\frac{4}{5}\right)$ 219) _____

A) $-\frac{13}{10}$ B) $-\frac{9}{20}$ C) $\frac{3}{10}$ D) $\frac{13}{10}$

220) $-\frac{4}{5} - \left(\frac{2}{5}\right)$ 220) _____

A) $\frac{4}{5}$ B) $-\frac{4}{25}$ C) $\frac{6}{5}$ D) $-\frac{6}{5}$

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221) $\frac{7}{8} - \left(-\frac{1}{24}\right)$ 221) _____

A) $-\frac{11}{12}$ B) $-\frac{1}{144}$ C) $\frac{1}{18}$ D) $\frac{11}{12}$

222) $\frac{1}{20} - \left(-\frac{5}{12}\right)$ 222) _____

A) $\frac{7}{15}$ B) $-\frac{13}{30}$ C) $-\frac{7}{15}$ D) $\frac{2}{15}$

Use a calculator to compute. Round the result to two decimal places.

223) −131.89 − 41.94 223) _____

A) −173.83 B) 173.83 C) 89.95 D) −89.95

224) −102.83 − 21.71 224) _____

A) 81.12 B) −124.54 C) −81.12 D) 124.54

225) −11,100.21 − 95,734.841 225) _____

A) 84,634.63 B) −106,835.05 C) −11,100.21 D) −84,634.63

226) $-\frac{27}{37} - \frac{13}{56}$ 226) _____

A) −0.50 B) 0.11 C) −0.96 D) 0.00

227) $-\frac{79}{90} - \left(-\frac{42}{83}\right)$ 227) _____

A) −1.38 B) −0.21 C) −0.37 D) −5.29

Solve the problem.

228) The temperature at 5:00 was −7°C. Four hours later, it was −9°C. What was the change in temperature? 228) _____

A) −16°C B) 16°C C) −2°C D) 2°C

229) The temperature on a December morning is −5°F at 1a.m. If the temperature drops 2° by 2 a.m., rises 5° by 3 a.m., and then drops 3° by 4a.m., find the temperature at 4 a.m. 229) _____

A) −15°F B) 15°F C) 5°F D) −5°F

230) At the start of a chemistry experiment, Sarah measured the temperature of a liquid to be −16°C. At the end of the experiment, it had risen 32°C. What was the liquid's temperature at the end of the experiment? 230) _____

A) −16°C B) 48°C C) −48°C D) 16°C

231) Sean has $371 in his savings account. After he withdraws $74, what will his balance be? 231) _____

A) −$297 B) $445 C) −$445 D) $297

232) Raya has $230 in her checking account. She writes a check for $43, makes a deposit for $90, and then writes another check for $122. Find the amount left in her account. 232) _____

A) 25 dollars B) 155 dollars C) −155 dollars D) −25 dollars

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233) The changes in retail sales (in billions of dollars) of gaming consoles in Country X from one year to t 233) _____
are given in the following table.

Changes in Retail Sales of gaming consoles	
Years	Changes in Retail Sales (billions of dollars)
2010–2011	0.0
2011–2012	–1.3
2012–2013	–0.5
2013–2014	0.0
2014–2015	1.4
2015–2016	2.2
2016–2017	1.9

(i) If there were $8.2 billion in sales in 2010, what were the sales during 2017?
(ii) During which period(s) were the retail sales increasing?
(iii) During which period(s) were the retail sales decreasing?

A) (i) 23.7 billion;
(ii) From 2013 to 2017;
(iii) From 2011 to 2014

B) (i) $11.9 billion;
(ii) From 2014 to 2017;
(iii) From 2011 to 2013

C) (i) 23.7 billion;
(ii) From 2014 to 2017;
(iii) From 2011 to 2013

D) (i) $11.9 billion;
(ii) From 2013 to 2017;
(iii) From 2011 to 2014

234) Last year, enrollment at an art school was 16,321 students. 234) _____
(i) Complete the table below to help find an expression that describes the current enrollment if the cl
in enrollment in the past year is c students. Show the arithmetic to help you see a pattern.
(ii) Evaluate the expression you find in part (i) for c = –100. What does your result mean in this situa

Changes in Enrollments and Current Enrollments	
Change in Enrollment	Current Enrollment
50	
75	
150	
225	
225	
375	
c	

A) (i)

Changes in Enrollments and Current Enrollments	
Change in Enrollment	Current Enrollment
50	50 + 16,321
75	75 + 16,321
150	150 + 16,321
225	225 + 16,321
225	225 + 16,321
375	375 + 16,321
c	c + 16,321

(ii) 16,221; This means that the current enrollment is 16,221 due to a decrease in enrollment of 100 students in the past year.

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B) (i)

Changes in Enrollments and Current Enrollments	
Change in Enrollment	Current Enrollment
50	16,321 – 50
75	16,321 – 75
150	16,321 – 150
225	16,321 – 225
225	16,321 – 225
375	16,321 – 375
c	16,321 – c

(ii) 16,421; This means that the current enrollment is 16,421 due to an increase in enrollment of 100 students in the past year.

C) (i)

Changes in Enrollments and Current Enrollments	
Change in Enrollment	Current Enrollment
50	50 + 16,321
75	75 + 16,321
150	150 + 16,321
225	225 + 16,321
300	225 + 16,321
375	375 + 16,321
c	450c + 16,321

(ii) 61,321; This means that the current enrollment is 61,321 due to an increase in enrollment of 45,000 students in the past year.

D) (i)

Changes in Enrollments and Current Enrollments	
Change in Enrollment	Current Enrollment
50	50 – 16,321
75	75 – 16,321
150	150 – 16,321
225	225 – 16,321
225	225 – 16,321
375	375 – 16,321
c	c – 16,321

(ii) –16,421; This means that the current enrollment is –16,421 due to a decrease in enrollment of 100 students in the past year.

Evaluate the expression for the given replacement values.

235) x + y, for x = –4 and y = –7 235) _____

A) –11 B) –3 C) 11 D) 3

236) y + x, for x = 4 and y = –8 236) _____

A) –4 B) 4 C) –12 D) 12

237) x – y for x = –28, y = 13 237) _____

A) –41 B) 41 C) 15 D) –15

238) x – y for x = –17, y = –6 238) _____

A) 23 B) –11 C) 11 D) –23

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239) $x - y$ for $x = 7, y = -24$ 239) _____

A) 17 B) 31 C) −17 D) −31

240) $x - y$ for $x = -7, y = -20$ 240) _____

A) 27 B) 13 C) −27 D) −13

241) $x - y$ for $x = 10, y = 16$ 241) _____

A) −26 B) 6 C) −6 D) 26

Let x be a number. Translate the English phrase or sentence into a mathematical expression.

242) 113 less than a number 242) _____

A) $113 \div x$ B) $x - 113$ C) $113 - x$ D) $x + 113$

243) −25 minus a number 243) _____

A) $-25 \div x$ B) $x - 25$ C) $x + 25$ D) $-25 - x$

244) Subtract 68 from a number 244) _____

A) $68 - x$ B) $68x$ C) $x - 68$ D) 68

245) Subtract −67 from a number. 245) _____

A) −67 B) $-67x$ C) $x - (-67)$ D) $67 - x$

246) The difference of a number and −78 246) _____

A) $-78 - x$ B) $-78 + x$ C) $-78x$ D) $x - (-78)$

247) Four less than a number 247) _____

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

248) The number decreased by −76 248) _____

A) $-76 - x$ B) $-76 + x$ C) $x - (-76)$ D) $-76 \div x$

249) 55 decreased by a number 249) _____

A) $55 + x$ B) $55 \div x$ C) $55 - x$ D) $x - 55$

250) −44 decreased by a number 250) _____

A) $-44 - x$ B) $-44 + x$ C) $x - (-44)$ D) $-44 \div x$

251) A number decreased by seven 251) _____

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

Write the percentage as a decimal number.

252) 2% 252) _____

A) 20.0 B) 2 C) 0.2 D) 0.02

253) 97% 253) _____

A) 97.0 B) 9.7 C) 0.97 D) 0.097

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254) 80% 254) _____
A) 0.8 B) 0.69 C) 0.08 D) 8

255) 80% 255) _____
A) 8 B) 0.8 C) 0.08 D) 80.0

256) 73% 256) _____
A) 73.0 B) 0.073 C) 0.73 D) 7.3

257) 9.3% 257) _____
A) 9.3 B) 93.0 C) 0.093 D) 0.93

258) 72.2% 258) _____
A) 7.22 B) 0.0722 C) 0.722 D) 72.2

259) 0.3% 259) _____
A) 0.3 B) 0.004 C) 0.003 D) 0.03

Write the decimal number as a percentage.

260) 0.8 260) _____
A) 800% B) 0.8% C) 80% D) 0.08%

261) 0.49 261) _____
A) 4.9% B) 490% C) 49% D) 0.049%

262) 0.088 262) _____
A) 0.88% B) 88% C) 0.088% D) 8.8%

263) 0.923 263) _____
A) 0.0923% B) 923% C) 0.923% D) 92.3%

264) 0.005 264) _____
A) 0.05% B) 5% C) 0.005% D) 0.5%

Solve the problem.

265) Find 5% of 600 cars. 265) _____
A) 300 cars B) 30 cars C) 3 cars D) 0.3 cars

266) Find 10% of 700 boxes. 266) _____
A) 0.7 boxes B) 700 boxes C) 70 boxes D) 7 boxes

267) Find 5% of $500. 267) _____
A) $250 B) $25 C) $2.50 D) $0.25

268) Find 30% of $169,000. 268) _____
A) $507 B) $5070 C) $5633 D) $50,700

269) Find 25% of 144 students. 269) _____
A) 108 students B) 36 students C) 17 students D) 576 students

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270) Find 8.7% of 4000 computers. 270) _____

A) 348 computers
B) 34,800 computers
C) 3480 computers
D) 35 computers

271) Find 40% of 1792 oz. 271) _____

A) 7168 oz B) 71,680 oz C) 71.68 oz D) 716.8 oz

272) Find 84% of 454 km. 272) _____

A) 38,136 km B) 381.36 km C) 38.14 km D) 3813.6 km

Find the product.

273) −11(7) 273) _____

A) −77 B) 66 C) −66 D) −84

274) 7(−2) 274) _____

A) −28 B) −4 C) 14 D) −14

275) 3(−6) 275) _____

A) −21 B) −118 C) −18 D) −180

276) −8(0) 276) _____

A) −16 B) −8 C) 8 D) 0

277) −15(−15) 277) _____

A) −225 B) 240 C) 225 D) −240

278) 9(4) 278) _____

A) 360 B) 26 C) 36 D) 27

279) −3.5(−18) 279) _____

A) 63 B) −21.5 C) −14.5 D) 21.5

280) 28(−66) 280) _____

A) −1838 B) 1858 C) −1848 D) 1948

281) −16(−842) 281) _____

A) −13,472 B) 13,472 C) 13,482 D) −13,482

282) $\left(-\frac{1}{9}\right)\left(\frac{5}{6}\right)$ 282) _____

A) $\frac{5}{54}$ B) $-\frac{5}{54}$ C) $\frac{2}{5}$ D) $-\frac{2}{5}$

283) $\left(-\frac{1}{3}\right)\left(-\frac{5}{6}\right)$ 283) _____

A) $\frac{2}{3}$ B) $-\frac{2}{3}$ C) $\frac{5}{18}$ D) $-\frac{5}{18}$

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284) $\frac{15}{7}\left(-\frac{2}{5}\right)$ 284) _____

A) $-\frac{6}{7}$ B) $\frac{4}{7}$ C) $-\frac{4}{7}$ D) $\frac{6}{7}$

285) $\left(-\frac{1}{6}\right)\left(-\frac{3}{7}\right)$ 285) _____

A) $-\frac{1}{14}$ B) $-\frac{4}{13}$ C) $\frac{1}{14}$ D) $\frac{3}{10}$

Find the quotient.

286) $-36 \div 9$ 286) _____

A) $-\frac{1}{4}$ B) -360 C) -4 D) 4

287) $-42 \div (-7)$ 287) _____

A) 6 B) $\frac{1}{6}$ C) -6 D) -420

288) $35 \div (-7)$ 288) _____

A) $-\frac{1}{5}$ B) 5 C) -5 D) -350

289) $\frac{-50}{10}$ 289) _____

A) $-\frac{1}{5}$ B) -500 C) -5 D) 5

290) $\frac{-32}{-8}$ 290) _____

A) -320 B) $\frac{1}{4}$ C) 4 D) -4

291) $\frac{32}{-8}$ 291) _____

A) -320 B) $-\frac{1}{4}$ C) 4 D) -4

292) $-23 \div (-1)$ 292) _____

A) $-\frac{1}{23}$ B) $\frac{1}{23}$ C) 23 D) -23

293) $-5 \div 5$ 293) _____

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

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294) $-144 \div 8$ 294) _____

A) $-\frac{1}{18}$ B) 18 C) −28 D) −18

295) $96 \div (-6)$ 295) _____

A) $-\frac{1}{16}$ B) −26 C) 16 D) −16

296) $-80 \div (-5)$ 296) _____

A) 6 B) $\frac{1}{16}$ C) 16 D) −16

297) $-234 \div (39)$ 297) _____

A) −16 B) −6 C) 6 D) $-\frac{1}{6}$

298) $495 \div (-99)$ 298) _____

A) $-\frac{1}{5}$ B) 5 C) −5 D) −15

299) $\frac{-144}{-9}$ 299) _____

A) 16 B) $\frac{1}{16}$ C) 6 D) −16

300) $442 \div (-17)$ 300) _____

A) −27 B) 27 C) −26 D) 26

301) $-47.4 \div (-6)$ 301) _____

A) $-\frac{1}{7.9}$ B) 7.9 C) − 7.9 D) 6.1

302) $42.4 \div (-8)$ 302) _____

A) −5.3 B) $-\frac{1}{5.3}$ C) 6.1 D) 5.3

303) $-35.2 \div 5$ 303) _____

A) −7.74 B) −7.04 C) 7.04 D) 7.74

304) $-4.1 \div (-4.1)$ 304) _____

A) −0.1 B) 0.1 C) 1.0 D) −1.0

305) $\frac{9}{21} \div (-3)$ 305) _____

A) $\frac{1}{7}$ B) $-\frac{1}{7}$ C) $-\frac{9}{7}$ D) − 7

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306) $-6 \div \left(-\frac{8}{25}\right)$ 306) _____

A) $-\frac{4}{75}$ B) $-\frac{75}{4}$ C) $\frac{4}{75}$ D) $\frac{75}{4}$

307) $\frac{5}{9} \div \frac{2}{7}$ 307) _____

A) $\frac{5}{9}$ B) $\frac{18}{35}$ C) $\frac{10}{63}$ D) $\frac{35}{18}$

308) $\frac{3}{5} \div \left(-\frac{6}{7}\right)$ 308) _____

A) $-\frac{7}{10}$ B) $-\frac{18}{35}$ C) $\frac{35}{18}$ D) $\frac{10}{7}$

309) $\left(-\frac{4}{7}\right) \div \left(-\frac{8}{5}\right)$ 309) _____

A) $-\frac{35}{32}$ B) $\frac{5}{14}$ C) $\frac{32}{35}$ D) $-\frac{14}{5}$

310) $-\frac{5}{8} \div \frac{7}{4}$ 310) _____

A) $-\frac{5}{14}$ B) $-\frac{14}{5}$ C) $-\frac{32}{35}$ D) $\frac{35}{32}$

311) $\left(-\frac{5}{13}\right) \div \left(-\frac{30}{91}\right)$ 311) _____

A) $-\frac{7}{6}$ B) $\frac{7}{6}$ C) $\frac{6}{7}$ D) $-\frac{6}{7}$

312) $-562.5 \div (-45)$ 312) _____

A) 13.5 B) −125 C) 12.5 D) −135

313) $-667.04 \div 17.6$ 313) _____

A) 3.79 B) −37.9 C) −3.79 D) 37.9

314) $-745.5 \div 0$ 314) _____

A) undefined B) −745.5 C) $-\frac{1}{745.5}$ D) 0

Simplify.

315) $\frac{-42}{-7}$ 315) _____

A) −6 B) 6 C) −420 D) $\frac{1}{6}$

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316) $\frac{39}{-52}$ 316) _____

A) $-\frac{3}{4}$ B) $\frac{13}{4}$ C) $\frac{3}{4}$ D) $-\frac{13}{4}$

317) $\frac{80}{-10}$ 317) _____

A) −8 B) −800 C) $-\frac{1}{8}$ D) 8

318) $\frac{-23}{-1}$ 318) _____

A) $\frac{1}{23}$ B) $-\frac{1}{23}$ C) −23 D) 23

319) $\frac{-15}{27}$ 319) _____

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

320) $\frac{160}{-8}$ 320) _____

A) 20 B) −20 C) $-\frac{1}{20}$ D) −30

321) $\frac{-66}{-3}$ 321) _____

A) $\frac{1}{22}$ B) −22 C) 12 D) 22

322) $\frac{-39}{-57}$ 322) _____

A) $\frac{13}{19}$ B) $-\frac{3}{19}$ C) $-\frac{13}{19}$ D) $\frac{3}{19}$

Perform the indicated operation.

323) $\frac{2}{-5}+\left(\frac{-1}{10}\right)$ 323) _____

A) $-\frac{13}{25}$ B) $-\frac{3}{10}$ C) $-\frac{1}{2}$ D) $-\frac{1}{5}$

324) $\frac{1}{5}-\left(\frac{1}{-30}\right)$ 324) _____

A) $\frac{7}{30}$ B) $\frac{1}{15}$ C) $-\frac{1}{15}$ D) $-\frac{7}{30}$

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325) $\frac{5}{9} + \left(\frac{2}{-8}\right)$ 325) _____

A) $\frac{1}{24}$ B) $\frac{22}{9}$ C) $\frac{11}{36}$ D) $\frac{1}{3}$

326) $\frac{6}{-9} - \left(\frac{-3}{8}\right)$ 326) _____

A) $-\frac{7}{24}$ B) $-\frac{1}{3}$ C) $\frac{7}{3}$ D) $\frac{7}{24}$

327) $\frac{1}{10} - \left(\frac{-2}{25}\right)$ 327) _____

A) $\frac{7}{50}$ B) $-\frac{9}{50}$ C) $\frac{9}{50}$ D) $-\frac{1}{10}$

328) $\frac{1}{-6} + \left(\frac{5}{-8}\right)$ 328) _____

A) $-\frac{3}{8}$ B) $-\frac{19}{24}$ C) $\frac{19}{24}$ D) $\frac{3}{8}$

Use a calculator to perform the indicated operation. Round the result to two decimal places.

329) 996.231 ÷ (−73.63) 329) _____

A) 13.53 B) 0.07 C) −0.07 D) −13.53

330) $-\frac{26}{55}\left(-\frac{312}{797}\right)$ 330) _____

A) 0.19 B) 5.40 C) −5.40 D) −0.19

Evaluate the expression for the given value or values.

331) 5x, for x = −9 331) _____

A) 45 B) $-\frac{9}{5}$ C) $-\frac{5}{9}$ D) −45

332) −7x, for x = −3 332) _____

A) $\frac{7}{3}$ B) 21 C) −21 D) $-\frac{7}{3}$

333) xy, for x = −4, y = −6 333) _____

A) −24 B) 24 C) $\frac{6}{4}$ D) 10

334) xy, for x = −5, y = 8 334) _____

A) 40 B) $\frac{8}{5}$ C) −40 D) $-\frac{8}{5}$

335) −xy for x = 8, y = −67 335) _____

A) −495 B) 536 C) −536 D) 495

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336) $-xy$ for $x = 9, y = 73$ 336) _____

A) -657 B) -642 C) 657 D) 642

337) $-xy$ for $x = -6, y = -64$ 337) _____

A) 384 B) -384 C) 370 D) -370

338) $\frac{y}{z}$, for $y = -21, z = 7$ 338) _____

A) 7 B) 3 C) -7 D) -3

339) $\frac{z}{y}$, for $y = -30, z = 5$ 339) _____

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

340) $\frac{z}{y}$, for $y = -14, z = -2$ 340) _____

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

341) $-\frac{y}{z}$, for $y = -45, z = 5$ 341) _____

A) 5 B) -5 C) 9 D) -9

342) $-\frac{y}{z}$, for $y = -6, z = -3$ 342) _____

A) 2 B) -2 C) -3 D) 3

343) $\frac{x}{y}$ for $x = 171, y = -3$ 343) _____

A) 60 B) -60 C) 57 D) -57

344) $-\frac{x}{y}$ for $x = -232, y = 4$ 344) _____

A) 58 B) -61 C) 61 D) -58

345) $\frac{y}{x}$ for $x = 290, y = -5$ 345) _____

A) $-\frac{1}{58}$ B) -58 C) 58 D) $\frac{1}{58}$

346) $\frac{y}{x}$ for $x = -174, y = -3$ 346) _____

A) -58 B) $\frac{1}{58}$ C) $-\frac{1}{58}$ D) 58

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347) $-\frac{y}{x}$ for $x = -400$, $y = -8$ 347) _____

A) $-\frac{1}{50}$ B) -50 C) 50 D) $\frac{1}{50}$

348) $\frac{x}{y}$ for $x = -159$, $y = 0$ 348) _____

A) 0 B) 159 C) -159 D) undefined

349) $\frac{y}{x}$ for $x = -216$, $y = 0$ 349) _____

A) 0 B) 216 C) -216 D) undefined

350) $-\frac{y}{x}$ for $x = -477$, $y = 0$ 350) _____

A) 0 B) 477 C) -477 D) undefined

Let x be a number. Translate the English phrase or sentence into a mathematical expression.

351) -4 times a number 351) _____

A) $-4 \div x$ B) $-4x$ C) $4x$ D) $-4 + x$

352) The product of -9 and a number 352) _____

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

353) A number divided by -42 353) _____

A) $-42 \div x$ B) $x \div (-42)$ C) $x - 42$ D) $-42x$

354) The quotient of -46 and a number 354) _____

A) $46 - x$ B) $x - 46$ C) $\frac{-46}{x}$ D) $\frac{x}{-46}$

355) Four divided by a number 355) _____

A) $4 \div x$ B) $x \div (-4)$ C) $4 - x$ D) $-4x$

Write the ratio as a fraction.

356) the ratio of 6 to 9 356) _____

A) $\frac{2}{3}$ B) $\frac{6}{2}$ C) $\frac{6}{3}$ D) $\frac{2}{9}$

357) the ratio of 10 to 75 357) _____

A) $\frac{15}{75}$ B) $\frac{2}{75}$ C) $\frac{2}{15}$ D) $\frac{10}{15}$

358) the ratio of 77 to 126 358) _____

A) $\frac{11}{18}$ B) 7 C) $\frac{7}{126}$ D) $\frac{11}{126}$

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Solve the problem.

359) A science experiment requires 493 milliliters of substance X and 14.5 milliliters of substance Y. Find the unit ratio of substance X to substance Y. What does your result mean in this situation? 359) _____

A) $\frac{1}{33.5}$; For every ml of substance X used, 33.5 ml of substance Y must be used.

B) $\frac{34}{1}$; For every ml of substance Y used, 34 ml of substance X must be used.

C) $\frac{34.5}{1}$; For every ml of substance Y used, 34.5 ml of substance X must be used.

D) $\frac{1}{34}$; For every ml of substance X used, 34 ml of substance Y must be used.

360) There were 834 billionaires in a certain country this year and 72 billionaires in this same country two years ago. Find the unit ratio of the number of billionaires this year to the number from two years ago. What does your result mean in this situation? 360) _____

A) $\frac{0.1}{1}$; The number of billionaires this year was 0.1 times greater than two years ago.

B) $\frac{11.6}{1}$; The number of billionaires this year was 11.6 times greater than two years ago.

C) $\frac{11.1}{1}$; The number of billionaires this year was 11.1 times greater than two years ago.

D) $\frac{12.3}{1}$; The number of billionaires this year was 12.3 times greater than two years ago.

361) A person has credit card balances of –4595 dollars on a Store A account and –50 dollars on a Store B account. Find the unit ratio of the Store A account to the Store B account. If the person wishes to pay off both accounts gradually in the same amount of time, describe how the unit ratio can help guide the person in making his next payment. 361) _____

A) $\frac{91.90}{1}$; For each \$1 he pays to his Store B account, he should pay \$91.90 to his Store A account.

B) $\frac{95.60}{1}$; For each \$1 he pays to his Store B account, he should pay \$95.60 to his Store A account.

C) $\frac{91.95}{1}$; For each \$1 he pays to his Store B account, he should pay \$91.95 to his Store A account.

D) $\frac{85.50}{1}$; For each \$1 he pays to his Store B account, he should pay \$85.50 to his Store A account.

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362) The average number of viewers per day for TV Show A is 5.0 million viewers while the average number of viewers per day for TV Show B is 13.0 million viewers. Find the unit ratio of the average number of viewers per day of TV Show B to the average number of viewers per day of TV Show A. What does your result mean in this situation? 362) _____

A) $\frac{13.5}{1}$; For every viewer watching TV Show A, there are about 13.5 viewers watching TV Show B.

B) $\frac{2.7}{1}$; For every viewer watching TV Show A, there are about 2.7 viewers watching TV Show B.

C) $\frac{5.25}{1}$; For every viewer watching TV Show A, there are about 5.25 viewers watching TV Show B.

D) $\frac{2.6}{1}$; For every viewer watching TV Show A, there are about 2.6 viewers watching TV Show B.

363) The populations and land areas are shown in the table for various regions: 363) _____

Populations and Land Areas

Region	Population	Land Area (square miles)
Region K	589,042	430,312
Region L	28,903,105	328,881
Region M	5,102,171	17,714
Region N	8,428,263	9532
Region O	16,189,561	63,695

(i) The unit ratio of population to land area is called the *population density*. Find the population densi each region listed in the table.
(ii) Which region listed in the table has the greatest population density?
(iii) Which region listed in the table has the least population density?

A) (i) Region K: $\frac{1 \text{ person}}{\text{square mile}}$; Region L: $\frac{88 \text{ people}}{\text{square mile}}$; Region M: $\frac{288 \text{ people}}{\text{square mile}}$; Region N: $\frac{884 \text{ people}}{\text{square mile}}$; Region O: $\frac{254 \text{ people}}{\text{square mile}}$
(ii) Region N has the greatest population density.
(iii) Region K has the least population density.

B) (i) Region K: $\frac{2738 \text{ people}}{\text{square mile}}$; Region L: $\frac{176 \text{ people}}{\text{square mile}}$; Region M: $\frac{778 \text{ people}}{\text{square mile}}$; Region N: $\frac{884 \text{ people}}{\text{square mile}}$; Region O: $\frac{508 \text{ people}}{\text{square mile}}$
(ii) Region K has the greatest population density.
(iii) Region L has the least population density.

C) (i) Region K: $\frac{684 \text{ people}}{\text{square mile}}$; Region L: $\frac{2197 \text{ people}}{\text{square mile}}$; Region M: $\frac{288 \text{ people}}{\text{square mile}}$; Region N: $\frac{442 \text{ people}}{\text{square mile}}$; Region O: $\frac{254 \text{ people}}{\text{square mile}}$
(ii) Region L has the greatest population density.
(iii) Region K has the least population density.

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D) (i) Region K: $\frac{3 \text{ people}}{\text{square mile}}$; Region L: $\frac{88 \text{ people}}{\text{square mile}}$; Region M: $\frac{432 \text{ people}}{\text{square mile}}$;

Region N: $\frac{884 \text{ people}}{\text{square mile}}$; Region O: $\frac{2542 \text{ people}}{\text{square mile}}$

(ii) Region O has the greatest population density.
(iii) Region K has the least population density.

364) A person has a zero balance on a credit card. The person uses the credit card to buy 2 DVDs at a cost of $16.99 per DVD. What is the new balance? 364) _____

A) –33.98 dollars B) –18.99 dollars C) –16.99 dollars D) 33.98 dollars

Perform the exponentiation.

365) 1^9 365) _____

A) 9 B) $\frac{1}{9}$ C) 1.11111111 D) 1

366) 11^1 366) _____

A) $\frac{1}{11}$ B) 11 C) 1 D) 1.09090909

367) $(-1)^8$ 367) _____

A) –8 B) 8 C) 1 D) –1

368) 4^2 368) _____

A) 17 B) 8 C) 16 D) 9

369) $(-7)^2$ 369) _____

A) 14 B) –14 C) 49 D) –49

370) $(-4)^3$ 370) _____

A) –64 B) 12 C) –12 D) 64

371) -5^2 371) _____

A) –10 B) 10 C) –25 D) 25

372) 6^3 372) _____

A) 216 B) 729 C) 125 D) 18

373) 10^4 373) _____

A) 10,000 B) 1000 C) 1,048,576 D) 40

374) $(-5)^4$ 374) _____

A) 625 B) –25 C) –625 D) 25

375) 4^5 375) _____

A) 625 B) 1024 C) 4096 D) 20

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376) $\left(\frac{2}{7}\right)^3$ 376) _____

A) $\frac{8}{7}$ B) 3.28571429 C) $\frac{8}{343}$ D) $\frac{343}{8}$

377) $\left(\frac{1}{8}\right)^2$ 377) _____

A) $\frac{1}{10}$ B) $\frac{1}{16}$ C) $\frac{1}{64}$ D) $\frac{1}{4}$

378) $\left(-\frac{7}{6}\right)^3$ 378) _____

A) $\frac{49}{36}$ B) $-\frac{343}{6}$ C) $-\frac{343}{216}$ D) $\frac{343}{216}$

379) $\left(-\frac{7}{2}\right)^2$ 379) _____

A) $-\frac{49}{2}$ B) $-\frac{49}{4}$ C) $\frac{49}{4}$ D) $\frac{49}{2}$

Perform the indicated operations.

380) $36 + 9 - 3$ 380) _____

A) 42 B) 108 C) 12 D) 222

381) $8 \cdot 9 - 5$ 381) _____

A) 360 B) 67 C) 32 D) 77

382) $27 \cdot 5 \div 5$ 382) _____

A) 37 B) 130 C) 675 D) 27.00

383) $-3 \cdot 2 + 12$ 383) _____

A) 30 B) 6 C) -18 D) -42

384) $240 \div 6 - 4$ 384) _____

A) 230 B) 238 C) 36 D) 120

385) $17 + 21 \cdot 26$ 385) _____

A) 988 B) 383 C) 563 D) 64

386) $-20 + 60 \div (-6)$ 386) _____

A) -30 B) 7 C) 30 D) -7

387) $\frac{7+4}{9+2}$ 387) _____

A) $\frac{11}{7}$ B) $\frac{3}{11}$ C) $\frac{3}{7}$ D) 1

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388) $\frac{3-1}{1-3}$ 388) _____

A) 2 B) –1 C) – 3 D) 3

389) $14 \cdot 8 + 6 \cdot 9$ 389) _____

A) 166 B) 868 C) 1062 D) 1764

390) $26 + 16 \cdot 24 - 28$ 390) _____

A) 980 B) 382 C) –168 D) 38

391) $-1(2) - (-18) \cdot 9$ 391) _____

A) –160 B) –164 C) 10 D) 160

392) $4 + 30 \cdot 5 - (-28)$ 392) _____

A) 198 B) 67 C) 126 D) 182

393) $11 + (-7)(-9) + (-20)$ 393) _____

A) 54 B) 7 C) 142 D) –198

394) $67 - 3 \cdot 6 + 42 \div (-6)$ 394) _____

A) –512 B) 377 C) 42 D) –19

395) $100 - 19 \cdot 2 + 128 \div 8$ 395) _____

A) 78 B) 178 C) 26 D) 1316

396) $\frac{2(5)+6}{3-7(7)}$ 396) _____

A) $-\frac{11}{23}$ B) $\frac{8}{23}$ C) $-\frac{4}{7}$ D) $-\frac{8}{23}$

397) $10 \div 2(9-2)$ 397) _____

A) –10 B) –4 C) 360 D) 35

398) $192 \div (16 \div 4)$ 398) _____

A) 188 B) 48 C) 3 D) 12

399) $4 \cdot 2 + 3(8+5) + 8$ 399) _____

A) 45 B) 55 C) 71 D) 268

400) $360 \div 9 - (2+2)$ 400) _____

A) 36 B) 38 C) 40 D) 72

401) $12 \div 2 \cdot (13-9)$ 401) _____

A) 132 B) 87 C) 24 D) 69

402) $-11 + (5 \cdot 2 + 30) \div 5$ 402) _____

A) 5 B) –3 C) –1 D) 3

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403) $12 \cdot 10 - (14 - 8) \div 3 - (8 - 6)$ 403) _____

A) 30 B) 36 C) 116 D) 104

404) $7^2 - 3 \cdot 5$ 404) _____

A) 80 B) 140 C) 34 D) 230

405) $(6 + 8)^2$ 405) _____

A) 100 B) 44 C) 70 D) 196

406) $6^2 + 3^3$ 406) _____

A) 45 B) 21 C) 39 D) 63

407) $2^3 - 3^4$ 407) _____

A) −6 B) −73 C) 89 D) −55

408) $7^3 - (-10)^2$ 408) _____

A) 443 B) 41 C) 243 D) −79

409) $4^2 - (-2)^3$ 409) _____

A) 14 B) 8 C) 25 D) 24

410) $(-12)^2 - (-5)^3$ 410) _____

A) 19 B) −19 C) −269 D) 269

411) $15 + 5^2 \cdot 3 - (-4)$ 411) _____

A) 124 B) 27 C) 94 D) 26

412) $7^2 - 2(6) + 15 \div 5$ 412) _____

A) 153 B) 40 C) 28 D) $\frac{52}{5}$

413) $12 + 5^2 - (-12) \cdot 8$ 413) _____

A) −59 B) 200 C) 133 D) 272

414) $(11 - 10)^2 + (6 + 4)^2$ 414) _____

A) 73 B) 121 C) 53 D) 101

415) $2^2 - 5^3 + 5^2 - 2^3$ 415) _____

A) −104 B) 96 C) 104 D) −96

416) $5 \cdot (2 + 4)^2 - 2 \cdot (5 - 3)^2$ 416) _____

A) 188 B) 712 C) 172 D) 884

417) $9^2 + 11 \cdot 6 - (8 + 4 \cdot 2)$ 417) _____

A) 536 B) 123 C) 131 D) 147

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418) $\frac{23+7}{3^2-4}$ 418) _____

A) 4 B) 15 C) 9 D) 6

419) $\frac{52 \cdot (18-15)-30}{3^2-3}$ 419) _____

A) 26 B) 21 C) 42 D) 27

420) $(-18) \div (-3) \cdot \left(-\frac{1}{2}\right)$ 420) _____

A) $-\frac{1}{3}$ B) 3 C) –12 D) – 3

421) $\frac{1}{3}+\frac{1}{6} \cdot \frac{1}{4}$ 421) _____

A) $\frac{1}{8}$ B) $\frac{3}{8}$ C) $\frac{11}{9}$ D) $\frac{1}{36}$

422) $-\frac{1}{30}+\frac{1}{4} \div \frac{1}{3}$ 422) _____

A) $-\frac{47}{60}$ B) $\frac{89}{60}$ C) $\frac{43}{120}$ D) $\frac{43}{60}$

423) $-\frac{7}{30}+\frac{1}{12} \div \frac{1}{3}$ 423) _____

A) $\frac{1}{60}$ B) $\frac{1}{120}$ C) $-\frac{29}{60}$ D) $\frac{23}{60}$

424) $\frac{8}{5} \cdot \frac{2}{7}+\frac{5}{6} \cdot \frac{2}{5}$ 424) _____

A) $\frac{83}{80}$ B) $\frac{5}{7}$ C) $\frac{83}{55}$ D) $\frac{83}{105}$

425) $\frac{3}{5}+\frac{3}{5} \div \left(-\frac{1}{4}\right) \cdot \frac{2}{3}$ 425) _____

A) $-\frac{36}{5}$ B) – 1 C) – 3 D) $-\frac{16}{5}$

426) $\frac{3}{5} \div \frac{2}{3}-10 \cdot \left(\frac{1}{2}\right)^2$ 426) _____

A) $-\frac{8}{5}$ B) $-\frac{91}{40}$ C) $-\frac{16}{15}$ D) $-\frac{241}{10}$

427) $85-28 \cdot 2+162 \cdot \left(-\frac{1}{9}\right)$ 427) _____

A) 11 B) –25 C) 96 D) –1039

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Use a calculator to perform the indicated operation.

428) $12.27 + 53.9(21.4) - 3.21 \div 1.95$ (round to two decimal places) 428) _____

A) −1139.54 B) 596.16 C) 1414.39 D) 1164.08

429) $\dfrac{(39.71)(-9.54) + 43.8}{73.05 - 22.82}$ (round to two decimal places) 429) _____

A) −4.41 B) 27.08 C) −6.67 D) −27.41

430) $16.2 \div 0.4(0.3) + (1.9)^2$ 430) _____

A) 17.26 B) 20.56 C) 15.76 D) 12.96

Evaluate the expression for the given value or values.

431) $4x + 5$ for $x = 7$ 431) _____

A) 33 B) 9 C) 23 D) 56

432) $-4x^2$ for $x = 5$ 432) _____

A) −100 B) −400 C) 400 D) 100

433) $(-5x)^2$ for $x = 4$ 433) _____

A) −400 B) −80 C) 80 D) 400

434) $x^2 - 36$ for $x = -1$ 434) _____

A) −36 B) 35 C) −6 D) −35

435) $2x^2 + 4x$ for $x = 4$ 435) _____

A) 16 B) 24 C) 48 D) 32

436) $-8x^2 - 7x - 5$ for $x = -2$ 436) _____

A) −27 B) 25 C) −23 D) −33

437) $4x^2 + 7x + 5$ for $x = -2$ 437) _____

A) 35 B) 3 C) −25 D) 7

438) $\dfrac{a - 9}{a - 1}$ for $a = 4$ 438) _____

A) $\dfrac{5}{13}$ B) $\dfrac{13}{5}$ C) $-\dfrac{3}{5}$ D) $-\dfrac{5}{3}$

439) $\dfrac{a + 7}{3a + 3}$ for $a = 4$ 439) _____

A) $\dfrac{15}{11}$ B) $\dfrac{11}{6}$ C) $\dfrac{7}{6}$ D) $\dfrac{11}{15}$

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440) $\frac{a^2}{1 - a^2}$ for $a = -9$ 440) _____

A) $-\frac{81}{80}$ B) $\frac{81}{80}$ C) $-\frac{80}{81}$ D) $\frac{81}{82}$

441) $3x + 2y$ for $x = 6, y = 7$ 441) _____

A) 5 B) 32 C) 20 D) 17

442) $8x - 2y$ for $x = 9, y = 3$ 442) _____

A) 78 B) 66 C) 70 D) 69

443) $\frac{4x}{y}$ for $x = 21, y = 3$ 443) _____

A) 12 B) 28 C) 56 D) 72

444) $\frac{x + y}{2}$ for $x = 8, y = 6$ 444) _____

A) 7 B) 10 C) 14 D) 11

445) $x^3 - 2y$ for $x = 8, y = 2$ 445) _____

A) 28 B) 516 C) 508 D) 20

446) $2x^2 + 3y$ for $x = 9, y = 4$ 446) _____

A) 59 B) 672 C) 174 D) 336

447) $a^2 - (-b)^3$ for $a = 2, b = 2$ 447) _____

A) 13 B) 12 C) –4 D) 10

448) $x - y + z$ for $x = 23, y = 8, z = 1$ 448) _____

A) 17 B) 14 C) 16 D) 32

449) $x - 2yz$ for $x = 90, y = 3, z = 5$ 449) _____

A) 80 B) 60 C) 420 D) 1320

450) $a \cdot b \div c$ for $a = 22, b = 8, c = 2$ 450) _____

A) 174 B) 32 C) 352 D) 88

451) $a^2 - b \cdot c$ for $a = 7, b = 2, c = 2$ 451) _____

A) 50 B) 45 C) 70 D) 94

452) $\frac{a + b}{c + d}$ for $a = 10, b = 4, c = 5, d = 7$ 452) _____

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

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453) $\frac{a + b}{c^2 - d}$ for a = 53, b = 7, c = 3, d = 4 453) _____

A) 18 B) 10 C) 12 D) 30

Let x be a number. Translate the English phrase or sentence into a mathematical expression.

454) –5 decreased by 9 times a number 454) _____

A) 9 – 5x B) 9x – 5 C) –5x – 9 D) –5 – 9x

455) 8 less than –9 times a number 455) _____

A) –9 – 8x B) –9x – 8 C) 8x – 9 D) 8 – 9x

456) 8 more than 6 times a number 456) _____

A) 14x B) 8x + 6 C) 6(8 + x) D) 6x + 8

Solve the problem.

457) In Country X, teacher pay in 1990 was $20.3 thousand and has increased by approximately $7 thousand per year since then. 457) _____

(i) Complete the table below to help find an expression that stands for the teacher pay (in thousands dollars) at t years since 1990. Show the arithmetic to help you see a pattern.

(ii) Evaluate the expression that you found in part (i) for t = 29. What does your result mean in this situation?

Numbers of Years and Teacher Pay	
Years Since 1990	Teacher Pay (thousands of dollars)
0	
1	
2	
3	
4	
t	

A) (i)

Numbers of Years and Teacher Pay	
Years Since 1990	Teacher Pay (thousands of dollars)
0	7 – 0 + 20.3
1	7 – 1 + 20.3
2	7 – 2 + 20.3
3	7 – 3 + 20.3
4	7 – 4 + 20.3
t	7 – t + 20.3

(ii) –1.7; Teacher pay will be about –$1.7 thousand in 2019.

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B) (i)

Numbers of Years and Teacher Pay	
Years Since 1990	Teacher Pay (thousands of dollars)
0	$-7 \cdot 0 + 20.3$
1	$-7 \cdot 1 + 20.3$
2	$-7 \cdot 2 + 20.3$
3	$-7 \cdot 3 + 20.3$
4	$-7 \cdot 4 + 20.3$
t	$-7t + 20.3$

(ii) −182.7; Teacher pay will be about −$182.7 thousand in 2019.

C) (i)

Numbers of Years and Teacher Pay	
Years Since 1990	Teacher Pay (thousands of dollars)
0	$7 \cdot 0 + 20.3$
1	$7 \cdot 1 + 20.3$
2	$7 \cdot 2 + 20.3$
3	$7 \cdot 3 + 20.3$
4	$7 \cdot 4 + 20.3$
t	$7t + 20.3$

(ii) 223.3; Teacher pay will be about $223.3 thousand in 2019.

D) (i)

Numbers of Years and Teacher Pay	
Years Since 1990	Teacher Pay (thousands of dollars)
0	$7 + 0 + 20.3$
1	$7 + 1 + 20.3$
2	$7 + 2 + 20.3$
3	$7 + 3 + 20.3$
4	$7 + 4 + 20.3$
t	$7 + t + 20.3$

(ii) 56.3; Teacher pay will be about $56.3 thousand in 2019.

458) The population of City A was about 679 thousand in 2007 and has decreased by about 6 thousand per year since then. 458) _____

(i) Complete the table below to help find an expression that stands for the population of City A (in thousands) at t years since 2007. Show the arithmetic to help you see a pattern.

(ii) Evaluate the expression that you found in part (i) for t = 23. What does your result mean in this situation?

Population of City A	
Years Since 2007	Population (thousands)
0	
1	
2	
3	
4	
t	

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A) (i)

Population of City A	
Years Since 2007	Population (thousands)
0	$6 \cdot 0 + 679$
1	$6 \cdot 1 + 679$
2	$6 \cdot 2 + 679$
3	$6 \cdot 2 + 679$
4	$6 \cdot 2 + 679$
t	$6t + 679$

(ii) 817; The population of City A will be about 817 thousand in 2030.

B) (i)

Population of City A	
Years Since 2007	Population (thousands)
0	$6 - 0 + 679$
1	$6 - 1 + 679$
2	$6 - 2 + 679$
3	$6 - 2 + 679$
4	$6 - 2 + 679$
t	$6 - t + 679$

(ii) 650; The population of City A will be about 650 thousand in 2030.

C) (i)

Population of City A	
Years Since 2007	Population (thousands)
0	$-6 \cdot 0 + 679$
1	$-6 \cdot 1 + 679$
2	$-6 \cdot 2 + 679$
3	$-6 \cdot 2 + 679$
4	$-6 \cdot 2 + 679$
t	$-6t + 679$

(ii) 541; The population of City A will be about 541 thousand in 2030.

D) (i)

Population of City A	
Years Since 2007	Population (thousands)
0	$-6 + 0 + 679$
1	$-6 + 1 + 679$
2	$-6 + 2 + 679$
3	$-6 + 2 + 679$
4	$-6 + 2 + 679$
t	$-6 + t + 679$

(ii) 696; The population of City A will be about 696 thousand in 2030.

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459) If a cube has sides of length s yards, then the volume of the cube is s^3 cubic yards. Find the volume of a cubic box with sides of length 21 yards. 459) _____

A) 9261 cubic yards
B) 63 cubic yards
C) 882 cubic yards
D) 441 cubic yards

460) If the radius of a sphere is r feet, then the volume of the sphere is $\frac{4}{3}\pi r^3$ cubic feet. Find the volume of a sphere with radius of 9 feet. Round your answer to two decimal places. 460) _____

A) 1526.82 cubic feet
B) 3053.64 cubic feet
C) 9160.91 cubic feet
D) 309.39 cubic feet

461) The normal gasoline mileage of a car is 46 mpg. On a smooth road, its mileage is 12% higher. What is its mileage on a smooth road? Round your answer to the nearest tenth. 461) _____

A) 50 mpg
B) 5.5 mpg
C) 46 mpg
D) 51.5 mpg

462) The regular price of a bathing suit is $35. The price is decreased 20% for a sale in July. What is the sale price of the suit? 462) _____

A) $27.00
B) $29.00
C) $7.00
D) $28.00

463) A computer printer costs $310. The price is increased by $2\frac{1}{2}$% for sales tax. What is the total price of the printer with tax? 463) _____

A) $314.65
B) $387.50
C) $320.85
D) $317.75

464) Brand X copier has improved its copier so that it produces 21% more copies than its old model. If the old model ran 579 copies per hour, how many copies would the new model run? Round your answer to the nearest whole number. 464) _____

A) 686 copies per hour
B) 323 copies per hour
C) 701 copies per hour
D) 594 copies per hour

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1) A
2) B
3) B
4) B
5) C
6) B
7) A
8) C
9) D
10) D
11) B
12) A
13) B
14) B
15) A
16) A
17) B
18) A
19) C
20) B
21) D
22) A
23) C
24) A
25) C
26) A
27) D
28) A
29) C
30) B
31) C
32) D
33) C
34) A
35) D
36) C
37) C
38) C
39) C
40) B
41) B
42) B
43) C
44) B
45) A
46) B
47) C
48) B
49) B
50) D

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51) C
52) D
53) C
54) B
55) A
56) D
57) D
58) D
59) B
60) C
61) B
62) B
63) B
64) C
65) B
66) C
67) B
68) A
69) D
70) B
71) D
72) A
73) C
74) B
75) A
76) D
77) A
78) C
79) A
80) B
81) A
82) B
83) A
84) D
85) A
86) C
87) A
88) B
89) B
90) D
91) A
92) B
93) B
94) D
95) C
96) B
97) C
98) C
99) D
100) A

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101) D
102) B
103) A
104) B
105) D
106) B
107) B
108) D
109) C
110) A
111) B
112) C
113) C
114) B
115) A
116) D
117) C
118) A
119) C
120) D
121) D
122) B
123) B
124) C
125) D
126) B
127) B
128) B
129) A
130) A
131) C
132) D
133) B
134) C
135) B
136) B
137) A
138) C
139) D
140) B
141) C
142) A
143) B
144) D
145) C
146) C
147) C
148) A
149) D
150) B

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151) C
152) C
153) B
154) B
155) D
156) D
157) A
158) D
159) D
160) C
161) A
162) A
163) C
164) C
165) D
166) D
167) B
168) A
169) B
170) B
171) B
172) A
173) D
174) C
175) C
176) D
177) B
178) C
179) D
180) A
181) A
182) A
183) D
184) D
185) B
186) D
187) A
188) A
189) A
190) D
191) B
192) C
193) C
194) A
195) C
196) D
197) D
198) A
199) C
200) C

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201) C
202) B
203) B
204) D
205) C
206) C
207) D
208) C
209) B
210) D
211) A
212) C
213) B
214) C
215) D
216) A
217) D
218) D
219) C
220) D
221) D
222) A
223) A
224) B
225) B
226) C
227) C
228) C
229) D
230) D
231) D
232) B
233) B
234) A
235) A
236) A
237) A
238) B
239) B
240) B
241) C
242) B
243) D
244) C
245) C
246) D
247) C
248) C
249) C
250) A

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251) B
252) D
253) C
254) A
255) B
256) C
257) C
258) C
259) C
260) C
261) C
262) D
263) D
264) D
265) B
266) C
267) B
268) D
269) B
270) A
271) D
272) B
273) A
274) D
275) C
276) D
277) C
278) C
279) A
280) C
281) B
282) B
283) C
284) A
285) C
286) C
287) A
288) C
289) C
290) C
291) D
292) C
293) D
294) D
295) D
296) C
297) B
298) C
299) A
300) C

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301) B
302) A
303) B
304) C
305) B
306) D
307) D
308) A
309) B
310) A
311) B
312) C
313) B
314) A
315) B
316) A
317) A
318) D
319) C
320) B
321) D
322) A
323) C
324) A
325) C
326) A
327) C
328) B
329) D
330) A
331) D
332) B
333) B
334) C
335) B
336) A
337) B
338) D
339) D
340) A
341) C
342) B
343) D
344) A
345) A
346) B
347) A
348) D
349) A
350) A

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351) B
352) B
353) B
354) C
355) A
356) A
357) C
358) A
359) B
360) B
361) A
362) D
363) A
364) A
365) D
366) B
367) C
368) C
369) C
370) A
371) C
372) A
373) A
374) A
375) B
376) C
377) C
378) C
379) C
380) A
381) B
382) D
383) B
384) C
385) C
386) A
387) D
388) B
389) A
390) B
391) D
392) D
393) A
394) C
395) A
396) D
397) D
398) B
399) B
400) A

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401) C
402) B
403) C
404) C
405) D
406) D
407) B
408) C
409) D
410) D
411) C
412) B
413) C
414) D
415) A
416) C
417) C
418) D
419) B
420) D
421) B
422) D
423) A
424) D
425) B
426) A
427) A
428) D
429) C
430) C
431) A
432) A
433) D
434) D
435) C
436) C
437) D
438) D
439) D
440) A
441) B
442) B
443) B
444) A
445) C
446) C
447) B
448) C
449) B
450) D

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451) B
452) C
453) C
454) D
455) B
456) D
457) C
458) C
459) A
460) B
461) D
462) D
463) D
464) C

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