Elementary and Intermediate Algebra Functions and Authentic Applications 3rd edition Lehmann Test Bank

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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) $53 + y$ for $y = 14$ 1) _____
A) 85 B) 76 C) 94 D) 67

2) $x - x$ for $x = 25$ 2) _____
A) 0 B) 1 C) –1 D) 25

3) $x \div 3$ for $x = 168$ 3) _____
A) 58 B) 54 C) 56 D) 59

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

5) $0 \div x$ for $x = 208$ 5) _____
A) 0 B) –1 C) 208 D) 1

6) $4x$, for $x = 8$ 6) _____
A) $\frac{4}{8}$ B) 32 C) 12 D) $\frac{8}{4}$

7) $x(8)$, for $x = 7$ 7) _____
A) 15 B) 56 C) $\frac{8}{7}$ D) $\frac{7}{8}$

8) $x + y$ for $x = 24, y = 23$ 8) _____
A) 56 B) 65 C) 74 D) 47

9) $x \div y$ for $x = 531, y = 9$ 9) _____
A) 62 B) 61 C) 59 D) 57

10) xy, for $x = 9, y = 7$ 10) _____
A) $\frac{9}{7}$ B) 16 C) $\frac{7}{9}$ D) 63

11) $x \cdot y$ for $x = 3, y = 94$ 11) _____
A) 382 B) 282 C) 277 D) 272

Solve the problem.

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12) Each ounce of gold is worth $43. 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 =6. 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	43 ÷ 1
2	43 ÷ 2
3	43 ÷ 3
4	43 ÷ 4
n	43 ÷ n

(ii) 7.17; $7.17 is the total value of 6 ounces of gold priced at $43 per ounce.

B) (i)

Number of Ounces and Total Value	
Number of Ounces	Total Value (dollars)
1	43 + 1
2	43 + 2
3	43 + 3
4	43 + 4
n	43 + n

(ii) 49; $49 is the total value of 6 ounces of gold priced at $43 per ounce.

C) (i)

Number of Ounces and Total Value	
Number of Ounces	Total Value (dollars)
1	43 – 1
2	43 – 2
3	43 – 3
4	43 – 4
n	43 – n

(ii) 37; $37 is the total value of 6 ounces of gold priced at $43 per ounce.

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D) (i)

Number of Ounces and Total Value	
Number of Ounces	Total Value (dollars)
1	$43 \cdot 1$
2	$43 \cdot 2$
3	$43 \cdot 3$
4	$43 \cdot 4$
n	43n

(ii) 258; $258 is the total value of 6 ounces of gold priced at $43 per ounce.

13) Each customer of a photography studio pays a sitting fee of $20. 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 = 175. What does your result mean in this situ

Cost of Photograph Package and Total Cost	
Cost of Photograph Package	Total Cost (dollars)
74	
75	
76	
77	
p	

A) (i)

Cost of Photograph Package and Total Cost	
Cost of Photograph Package	Total Cost (dollars)
74	74 + 20
75	75 + 20
76	76 + 20
77	77 + 20
p	p + 20

(ii) 195; If the photograph package is $175, then the total cost is $195.

B) (i)

Cost of Photograph Package and Total Cost	
Cost of Photograph Package	Total Cost (dollars)
74	74 + 20
75	75 + 20
76	76 + 20
77	77 + 20
p	p + 20

(ii) 8.75; If the photograph package is $175, then the total cost is $8.75.

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C) (i)

Cost of Photograph Package and Total Cost	
Cost of Photograph Package	Total Cost (dollars)
74	74 + 20
75	75 + 20
76	76 + 20
77	77 + 20
p	p + 20

(ii) 155; If the photograph package is $175, then the total cost is $155.

D) (i)

Cost of Photograph Package and Total Cost	
Cost of Photograph Package	Total Cost (dollars)
74	74 + 20
75	75 + 20
76	76 + 20
77	77 + 20
p	p + 20

(ii) 3500; If the photograph package is $175, then the total cost is $3500.

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

14) The total of 73 and a number 14) _____

A) 73x B) 73 C) 73 – x D) 73 + x

15) The sum of a number and 134 15) _____

A) 134x B) x + 134 C) 134 D) x – 134

16) 2 times a number 16) _____

A) 2 + x B) 2x C) 2 ÷ x D) 2 – x

17) 55 less than a number 17) _____

A) 55 – x B) 55 ÷ x C) x – 55 D) x + 55

18) The product of 2 and a number 18) _____

A) 2x B) 2 + x C) 2 – x D) 2 ÷ x

19) Subtract 55 from a number 19) _____

A) 55x B) 55 C) 55 – x D) x – 55

20) The difference of a number and 62 20) _____

A) 62 – x B) 62 C) x – 62 D) 62x

21) 63 decreased by a number 21) _____

A) x – 63 B) 63 ÷ x C) 63 + x D) 63 – x

22) Divide a number by 68 22) _____

A) 68x B) x ÷ 68 C) x – 68 D) 68 ÷ x

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23) The quotient of 68 and a number 23) _____

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

24) A number increased by 98 24) _____

A) $98x$ B) $x - 98$ C) $98 \div x$ D) $x + 98$

25) Five more than a number 25) _____

A) $5x$ B) $x - 5$ C) $x + 5$ D) $x \div 5$

26) Eight less than a number 26) _____

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

27) Divide a number by six 27) _____

A) $x \div 6$ B) $6 \div x$ C) $6 - x$ D) $6x$

28) A number decreased by two 28) _____

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

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

29) $114 + x$ 29) _____

A) Divide 114 by a number.
B) The difference of 114 and a number
C) The total of 114 and a number
D) Multiply 114 by a number.

30) $x + 87$ 30) _____

A) The product of a number and 87
B) The quotient of a number and 87
C) The difference between a number and 87
D) The sum of a number and 87

31) $2x$ 31) _____

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

32) $x - 13$ 32) _____

A) 13 plus a number
B) 13 less than a number
C) 13 increased by a number
D) 13 less a number

33) $9x$ 33) _____

A) The quotient of 9 and a number
B) Divide a number by 9.
C) The sum of 9 and a number
D) The product of 9 and a number

34) $x - 65$ 34) _____

A) Subtract a number from 65
B) Subtract 65 from a number
C) The ratio of 65 and a number
D) 65 multiplied by a number

35) $x - 46$ 35) _____

A) The quotient of a number and 46
B) The difference of 46 and a number
C) The difference of a number and 46
D) The sum of a number and 46

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36) 79 – x 36) _____

A) A number less 79
B) A number decreased by 79
C) 79 less than a number
D) 79 decreased by a number

37) x ÷ 59 37) _____

A) Divide a number by 59
B) The ratio of 59 to a number
C) Divide 59 by a number.
D) The quotient of 59 and a number

38) 69 ÷ x 38) _____

A) The quotient of 69 and a number
B) The quotient of a number and 69
C) Divide a number by 69.
D) The ratio of a number to 69

39) x + 80 39) _____

A) A number divided by 80
B) A number increased by 80
C) A number multiplied by 80
D) A number decreased by 80

40) x + 3 40) _____

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

41) x – 9 41) _____

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

42) 20 ÷ x 42) _____

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

43) x – 4 43) _____

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

Solve the problem.

44) Translate the phrase into a mathematical expression then evaluate the expression for x = 15 and y = 13. 44) _____

The sum of x and y

A) x + y; 82 B) x + y; 46 C) x + y; 28 D) x + y; 64

45) Translate the phrase into a mathematical expression then evaluate the expression for x = 208 and y = 4. 45) _____

The quotient of x and y

A) x ÷ y; 54 B) x ÷ y; 50 C) x ÷ y; 55 D) x ÷ y; 52

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46) Translate the phrase into a mathematical expression then evaluate the expression for x = 3 and y = 6. 46) _____

The product of x and y

A) $y \div x; \frac{6}{3}$ B) x + y; 9 C) $x \div y; \frac{3}{6}$ D) xy; 18

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 481 points in 2015. Estimate the average verbal SAT score in 2015. 47) _____

A) 506 points B) 496 points C) 501 points D) 491 points

48) A person drives 44t miles in t hours. 48) _____

(i) Evaluate 44t 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) 44, 88, 132, 176; The person drives 44 miles in 1 hour, 88 miles in 2 hours, 132 miles in 3 hours, 176 miles in 4 hours.
(ii) The person is driving 44 miles per hour.

B) (i) 45, 46, 47, 48; The person drives 45 miles in 1 hour, 46 miles in 2 hours, 47 miles in 3 hours, 48 miles in 4 hours.
(ii) The person is driving 45 miles per hour.

C) (i) 88, 132, 176, 220; The person drives 88 miles in 1 hour, 132 miles in 2 hours, 176 miles in 3 hours, 220 miles in 4 hours.
(ii) The person is driving 44 miles per hour.

D) (i) 44, 22.0, 14.7, 11.0; The person drives 44 miles in 1 hour, 22.0 miles in 2 hours, 14.7 miles in 3 hours, 11.0 miles in 4 hours.
(ii) The person is driving 44 miles per hour.

49) Kevin and Amir share in the profits of a pet supplies store. If the total profit is $80,000 and p is the amount of profit Kevin receives, write an expression for the amount Amir receives. 49) _____

A) $80,000 – p B) $80,000 + p C) p – $80,000 D) p + $80,000

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

A) y + 10 B) $\frac{10}{y}$ C) $\frac{y}{10}$ D) 10y

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 90 new bikes, how many used bikes are now in stock? 51) _____

A) 45 used bikes B) 60 used bikes C) 30 used bikes D) 270 used bikes

Write the number as a product of primes.

52) 63 52) _____

A) $3 \cdot 7$ B) $9 \cdot 3$ C) $7 \cdot 7$ D) $3 \cdot 3 \cdot 7$

53) 63 53) _____

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

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54) 95 54) _____

A) $5 \cdot 19$ B) $5 \cdot 21$ C) $6 \cdot 21$ D) $18 \cdot 7$

55) 165 55) _____

A) $5 \cdot 5 \cdot 3$ B) $3 \cdot 5 \cdot 11 \cdot 11$ C) $3 \cdot 5 \cdot 11$ D) $3 \cdot 3 \cdot 11$

56) 350 56) _____

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

Simplify.

57) $\frac{3}{6}$ 57) _____

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

58) $\frac{14}{35}$ 58) _____

A) $\frac{2}{7}$ B) $\frac{2}{5}$ C) $\frac{7}{5}$ D) $\frac{14}{35}$

59) $\frac{22}{33}$ 59) _____

A) $\frac{2}{11}$ B) $\frac{22}{33}$ C) $\frac{11}{3}$ D) $\frac{2}{3}$

60) $\frac{70}{80}$ 60) _____

A) $\frac{10}{8}$ B) $\frac{7}{8}$ C) $\frac{70}{80}$ D) $\frac{7}{10}$

61) $\frac{30}{40}$ 61) _____

A) $\frac{3}{4}$ B) $\frac{3}{10}$ C) $\frac{30}{40}$ D) $\frac{10}{4}$

62) $\frac{30}{51}$ 62) _____

A) $\frac{30}{51}$ B) $\frac{3}{17}$ C) $\frac{10}{17}$ D) $\frac{10}{3}$

63) $\frac{56}{52}$ 63) _____

A) $\frac{14}{13}$ B) $\frac{13}{4}$ C) $\frac{13}{14}$ D) $\frac{56}{52}$

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

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

Perform the indicated operation.

65) $\frac{1}{4} \cdot \frac{3}{5}$ 65) _____

A) $\frac{20}{3}$ B) $\frac{3}{20}$ C) $\frac{4}{9}$ D) $\frac{12}{5}$

66) $\frac{13}{6} \cdot \frac{3}{8}$ 66) _____

A) $\frac{29}{16}$ B) $\frac{11}{16}$ C) $\frac{13}{16}$ D) $\frac{99}{48}$

67) $\frac{43}{18} \cdot 4$ 67) _____

A) $\frac{151}{18}$ B) $\frac{77}{9}$ C) $\frac{86}{9}$ D) 8

68) $\frac{1}{11} \div \frac{5}{14}$ 68) _____

A) $\frac{14}{55}$ B) $\frac{13}{55}$ C) $\frac{12}{55}$ D) $\frac{14}{53}$

69) $\frac{2}{13} \div \frac{5}{12}$ 69) _____

A) $\frac{24}{65}$ B) $\frac{24}{63}$ C) $\frac{22}{65}$ D) $\frac{23}{65}$

70) $\frac{2}{7} \div \frac{6}{7}$ 70) _____

A) $\frac{1}{3}$ B) $\frac{4}{7}$ C) $\frac{12}{49}$ D) $\frac{49}{12}$

71) $\frac{6}{20} \div \frac{12}{10}$ 71) _____

A) $\frac{20}{80}$ B) $\frac{1}{5}$ C) $\frac{1}{4}$ D) $\frac{1}{3}$

72) $\frac{10}{7} \div \frac{2}{7}$ 72) _____

A) 6 B) 5 C) $\frac{7}{2}$ D) 4

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73) $\frac{45}{8} \div 9$ 73) _____

A) $\frac{5}{7}$ B) $\frac{5}{8}$ C) $\frac{4}{8}$ D) $\frac{6}{8}$

Add or subtract. Simplify the answer.

74) $\frac{4}{7} + \frac{3}{7}$ 74) _____

A) 1 B) $\frac{7}{14}$ C) $\frac{1}{2}$ D) $\frac{7}{7}$

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

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

76) $\frac{9}{13} + \frac{3}{13}$ 76) _____

A) $\frac{13}{14}$ B) $\frac{11}{13}$ C) $\frac{12}{13}$ D) $\frac{11}{12}$

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

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

78) $\frac{13}{14} - \frac{9}{14}$ 78) _____

A) $\frac{4}{28}$ B) $\frac{2}{7}$ C) $\frac{4}{14}$ D) $\frac{4}{0}$

79) $\frac{42}{41} - \frac{41}{41}$ 79) _____

A) $\frac{1}{41}$ B) $\frac{1}{82}$ C) $\frac{83}{41}$ D) 42

80) $\frac{3}{29} + \frac{3}{29}$ 80) _____

A) $\frac{5}{28}$ B) $\frac{6}{29}$ C) $\frac{5}{29}$ D) $\frac{7}{30}$

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

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

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82) $\frac{3}{8} + \frac{4}{9}$ 82) _____

A) $\frac{7}{17}$ B) $\frac{7}{72}$ C) $\frac{59}{17}$ D) $\frac{59}{72}$

83) $\frac{6}{9} - \frac{3}{6}$ 83) _____

A) $\frac{1}{6}$ B) 1 C) $\frac{1}{3}$ D) $\frac{1}{18}$

84) $\frac{1}{7} - \frac{1}{12}$ 84) _____

A) $\frac{1}{7}$ B) $\frac{5}{84}$ C) $\frac{1}{84}$ D) $\frac{5}{7}$

85) $\frac{4}{9} + \frac{7}{10}$ 85) _____

A) $\frac{103}{90}$ B) $\frac{11}{90}$ C) $\frac{11}{19}$ D) $\frac{53}{45}$

86) $\frac{8}{9} - \frac{2}{6}$ 86) _____

A) $\frac{5}{9}$ B) $\frac{2}{3}$ C) $\frac{10}{3}$ D) $\frac{1}{9}$

87) $\frac{1}{6} + \frac{1}{24}$ 87) _____

A) $\frac{1}{15}$ B) $\frac{5}{24}$ C) $\frac{31}{144}$ D) $\frac{1}{12}$

88) $\frac{11}{14} - \frac{1}{8}$ 88) _____

A) $\frac{37}{56}$ B) $\frac{37}{112}$ C) $\frac{43}{56}$ D) $\frac{5}{28}$

89) $\frac{9}{14} - \frac{2}{35}$ 89) _____

A) $\frac{41}{490}$ B) $\frac{1}{10}$ C) $\frac{43}{70}$ D) $\frac{41}{70}$

90) $\frac{3}{8} + \frac{1}{12}$ 90) _____

A) $\frac{11}{20}$ B) $\frac{11}{24}$ C) $\frac{5}{12}$ D) $\frac{1}{6}$

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91) $\frac{14}{5} - \frac{7}{25}$ 91) _____

A) $\frac{63}{125}$ B) $\frac{7}{25}$ C) $\frac{63}{5}$ D) $\frac{63}{25}$

92) $7 + \frac{5}{7}$ 92) _____

A) $\frac{12}{7}$ B) $\frac{55}{7}$ C) $\frac{54}{7}$ D) 5

93) $6 - \frac{1}{4}$ 93) _____

A) $\frac{21}{4}$ B) $-\frac{25}{4}$ C) $\frac{23}{4}$ D) $\frac{11}{4}$

94) $\frac{24}{7} - 1$ 94) _____

A) $\frac{23}{7}$ B) $\frac{167}{7}$ C) $\frac{17}{7}$ D) 23

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

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

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

96) $\frac{44}{44}$ 96) _____

A) 0 B) $\frac{1}{44}$ C) 1 D) 44

97) $\frac{3}{1}$ 97) _____

A) 3 B) $\frac{1}{3}$ C) 2 D) undefined

98) $\frac{0}{44}$ 98) _____

A) 44 B) 0 C) $\frac{1}{44}$ D) undefined

99) $\frac{38}{0}$ 99) _____

A) $\frac{1}{38}$ B) 0 C) 38 D) undefined

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100) $\frac{106}{1}$ 100) _____

A) 0 B) 106 C) $\frac{1}{106}$ D) undefined

101) $\frac{465}{0}$ 101) _____

A) $\frac{1}{23}$ B) 0 C) 1 D) undefined

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

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

103) $\frac{135}{143} \cdot \frac{143}{135}$ 103) _____

A) 143 B) 0 C) 1 D) undefined

104) $\frac{149}{150} - \frac{149}{150}$ 104) _____

A) 0 B) $\frac{1}{150}$ C) 1 D) undefined

Evaluate the expression for the given value or values.

105) $\frac{y}{z}$, for $y = 12$ and $z = 6$ 105) _____

A) 6 B) –6 C) 2 D) –2

106) $\frac{x}{2} + \frac{y}{2}$ for $x = 10$, $y = 12$ 106) _____

A) 17 B) 22 C) 11 D) 16

107) $\frac{x}{w} \div \frac{y}{z}$ for $w = 4$, $x = 7$, $y = 4$ and $z = 28$ 107) _____

A) $\frac{4}{49}$ B) $\frac{49}{4}$ C) $\frac{1}{49}$ D) $\frac{1}{4}$

108) $\frac{y}{z} \cdot \frac{w}{x}$ for $w = 9$, $x = 5$, $y = 2$ and $z = 45$ 108) _____

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

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109) $\frac{x}{w} - \frac{y}{z}$ for $w = 2$, $x = 3$, $y = 8$ and $z = 6$ 109) _____

A) $\frac{1}{3}$ B) $\frac{17}{6}$ C) $\frac{1}{2}$ D) $\frac{1}{6}$

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

110) $\frac{1}{34} \cdot \frac{9}{70}$ 110) _____

A) 0.08 B) 0.04 C) 0.00 D) 0.32

111) $\frac{16}{19} \cdot \frac{13}{25}$ 111) _____

A) 4.73 B) 0.06 C) 0.66 D) 0.44

112) $\frac{15}{28} \div \frac{35}{24}$ 112) _____

A) 0.37 B) 18 C) 2.57 D) 1.00

113) $\frac{209}{345} - \frac{197}{548}$ 113) _____

A) 0.00 B) 0.06 C) 0.97 D) 0.25

114) $\frac{725}{948} + \frac{469}{877}$ 114) _____

A) 1.32 B) 0.00 C) 0.65 D) 1.30

Solve the problem.

115) A rectangular plot of land has a length of $\frac{6}{11}$ km and a width of $\frac{1}{3}$ km. What is the area of this plot? 115) _____



$\frac{1}{3}$ km

$\frac{6}{11}$ km

A) $\frac{6}{33}$ square km B) $\frac{2}{11}$ square km C) $\frac{1}{2}$ square km D) $\frac{3}{7}$ square km

116) A piece of cheese weighing $\frac{2}{5}$ pound is to be divided into 6 equal portions. What will be the weight each portion? 116) _____

A) 15 lb B) $\frac{1}{15}$ lb C) $\frac{3}{5}$ lb D) $\frac{12}{5}$ 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	$\frac{2}{41}$
3	$\frac{3}{41}$
4	$\frac{4}{41}$
5	$\frac{5}{41}$
t	$\frac{t}{41}$

B)

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	$t \cdot 41$

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) Gregor walked $\frac{4}{20}$ mile to his biology class, $\frac{5}{20}$ mile to his art class, $\frac{6}{20}$ 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) $\frac{1}{4}$ mi B) $\frac{11}{20}$ mi C) $\frac{1}{2}$ mi D) $\frac{3}{4}$ 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 $\frac{1}{3}$ hr at the History Channel website. How many hours did she spend at the Discovery Channel website? 119) _____

A) $\frac{7}{9}$ hr B) $\frac{2}{9}$ hr C) $\frac{1}{2}$ hr D) $\frac{4}{9}$ 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 $\frac{4}{9}$, what is the probability that he does not pass his driving test? 120) _____

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

121) The front cover of a book measures $\frac{17}{2}$ inches by $\frac{28}{3}$ inches. What is the total distance around (the perimeter of) the front cover of the book? 121) _____

A) $\frac{107}{3}$ in. B) $\frac{106}{3}$ in. C) 35 in. D) $\frac{107}{6}$ in.

Compute.

122) $-(-15)$ 122) _____

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

123) $-(-5)$ 123) _____

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

124) $-(-24)$ 124) _____

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

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

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

126) $|19|$ 126) _____

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

127) $|-2|$ 127) _____

A) $-\frac{1}{2}$ B) 2 C) -2 D) 0

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128) $|-12|$ 128) _____

A) $-\frac{1}{12}$ B) -12 C) 12 D) 0

129) $-|15|$ 129) _____

A) 0 B) 15 C) $\frac{1}{15}$ D) -15

130) $-|10|$ 130) _____

A) 0 B) $-\frac{1}{10}$ C) 10 D) -10

131) $-|-5|$ 131) _____

A) -5 B) $-\frac{1}{5}$ C) 0 D) 5

Find the sum.

132) $8 + (-14)$ 132) _____

A) 6 B) -6 C) 22 D) -22

133) $-2 + 12$ 133) _____

A) 14 B) -10 C) 10 D) -14

134) $-5 + (-14)$ 134) _____

A) -19 B) -9 C) 9 D) 19

135) $12 + (-18)$ 135) _____

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

136) $-24 + 21$ 136) _____

A) -3 B) -45 C) 45 D) 3

137) $-2 + (-16)$ 137) _____

A) 18 B) 14 C) -14 D) -18

138) $43 + (-31)$ 138) _____

A) 74 B) -74 C) -12 D) 12

139) $-10 + 46$ 139) _____

A) 36 B) -36 C) -56 D) 56

140) $-15 + (-41)$ 140) _____

A) -26 B) 56 C) 26 D) -56

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

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

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142) –21 + (–21) 142) _____
A) 42 B) –21 C) –42 D) 0

143) 15 + (–5) 143) _____
A) 10 B) 20 C) –20 D) –10

144) –16 + 56 144) _____
A) 40 B) 72 C) –40 D) –72

145) –36 + (–14) 145) _____
A) –50 B) –22 C) 22 D) 50

146) 85 + (–144) 146) _____
A) 59 B) –59 C) 229 D) –229

147) –85 + 142 147) _____
A) 57 B) 227 C) –227 D) –57

148) –68 + (–141) 148) _____
A) –209 B) –73 C) 73 D) 209

149) –476 + (–1215) 149) _____
A) 1691 B) 739 C) –1691 D) –739

150) –183 + 655 150) _____
A) –838 B) –472 C) 472 D) 372

151) –957 + 454 151) _____
A) 403 B) – 503 C) –1411 D) 503

152) –472 + (–746) 152) _____
A) –1218 B) –174 C) 274 D) –274

153) 50,934 + (–50,934) 153) _____
A) 0 B) –101,868 C) 101,868 D) –34

154) –3.1 + (–14.3) 154) _____
A) –17.4 B) 17.4 C) –11.2 D) 11.2

155) 10.2 + (–23.6) 155) _____
A) 33.8 B) 13.4 C) –13.4 D) –33.8

156) 5.2 + (–9.8) 156) _____
A) 4.6 B) –4.6 C) 15 D) –15

157) –22.9 + 18.9 157) _____
A) 4 B) –41.8 C) 41.8 D) –4

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158) $-8.2 + (-2.3)$ 158) _____

A) 5.9 B) −10.5 C) 10.5 D) −5.9

159) $\frac{5}{9} + \left(-\frac{2}{3}\right)$ 159) _____

A) $-\frac{1}{9}$ B) $\frac{1}{9}$ C) $\frac{11}{9}$ D) $-\frac{11}{9}$

160) $-\frac{4}{7} + \frac{6}{7}$ 160) _____

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

161) $-\frac{8}{9} + \left(-\frac{2}{9}\right)$ 161) _____

A) $-\frac{10}{9}$ B) $-\frac{2}{3}$ C) $\frac{10}{9}$ D) $\frac{2}{3}$

162) $\frac{13}{48} + \left(-\frac{13}{48}\right)$ 162) _____

A) $-\frac{13}{24}$ B) $\frac{13}{24}$ C) $\frac{13}{12}$ D) 0

163) $-\frac{5}{12} + \left(-\frac{2}{3}\right)$ 163) _____

A) $-\frac{13}{12}$ B) $-\frac{1}{2}$ C) $\frac{1}{4}$ D) $-\frac{3}{2}$

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

164) 669.25 + (−86.44) 164) _____

A) 582.81 B) 583.25 C) 755.69 D) −582.81

165) −27.74 + (−11.66) 165) _____

A) −39.40 B) 39.40 C) −16.08 D) 16.08

166) −7.69 + 49.85 166) _____

A) −42.16 B) 57.54 C) 42.16 D) −57.54

167) −114.32 + 43.52 167) _____

A) −69.80 B) −157.84 C) 150.00 D) −70.80

168) −148.44 + (−23.27) 168) _____

A) −125.17 B) 171.71 C) −171.71 D) 125.17

169) $-11{,}592.63 + (-91{,}707.63)$ 169) _____

A) 80,115.00 B) −80,115.00 C) 103,300.26 D) −103,300.26

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170) $\frac{210}{359} + \left(-\frac{181}{573}\right)$ 170) _____

A) −0.14 B) 0.90 C) 0.03 D) 0.27

171) $-\frac{753}{961} + \left(-\frac{498}{899}\right)$ 171) _____

A) −20.18 B) −1.34 C) 1.34 D) −0.67

Find the difference.

172) x + y, for x = 2 and y = −1 172) _____

A) 1 B) −3 C) −2 D) 3

173) y + x, for x = −2 and y = 4 173) _____

A) −6 B) 6 C) −8 D) 2

174) a + b, for a = 4 and b = −3 174) _____

A) 7 B) −1 C) −7 D) 1

175) b + a, for a = −2 and b = 0 175) _____

A) 0 B) 2 C) −20 D) −2

176) c + d, for c = −6 and d = −8 176) _____

A) 14 B) 2 C) −14 D) −2

177) d + c, for c = −2 and d = 10 177) _____

A) 12 B) −12 C) 8 D) −8

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

178) The total of −68 and a number 178) _____

A) −68 B) −68x C) 68 − x D) −68 + x

179) The sum of a number and −148 179) _____

A) −148x B) x + (−148) C) x + 148 D) −148

180) −55 increased by a number 180) _____

A) −55 + x B) −55x C) x + 55 D) −55 ÷ x

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
					−84.75
	12/20	Paycheck		728.07	
1752	12/22	Petcom	20.45		
1753	12/22	Park & Shop	274.48		
	1/02	ATM	50.00		
	1/09	Rebate		21.46	

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A)

Check Register					
Check Number	Date	Description of Transaction	Payment	Deposit	Balance
					−84.75
	12/20	Paycheck		728.07	643.32
1752	12/22	Petcom	20.45		622.87
1753	12/22	Park & Shop	274.48		348.39
	1/02	ATM	50.00		298.39
	1/09	Rebate		21.46	319.85

The final balance of the checking account is 319.85 dollars.

B)

Check Register					
Check Number	Date	Description of Transaction	Payment	Deposit	Balance
					−84.75
	12/20	Paycheck		728.07	−812.82
1752	12/22	Petcom	20.45		−792.37
1753	12/22	Park & Shop	274.48		−517.89
	1/02	ATM	50.00		−467.89
	1/09	Rebate		21.46	−489.35

The final balance of the checking account is −489.35 dollars.

C)

Check Register					
Check Number	Date	Description of Transaction	Payment	Deposit	Balance
					−84.75
	12/20	Paycheck		728.07	643.32
1752	12/22	Petcom	20.45		622.87
1753	12/22	Park & Shop	274.48		348.39
	1/02	ATM	50.00		298.39
	1/09	Rebate		21.46	276.93

The final balance of the checking account is 276.93 dollars.

D)

Check Register					
Check Number	Date	Description of Transaction	Payment	Deposit	Balance
					−84.75
	12/20	Paycheck		728.07	643.32
1752	12/22	Petcom	20.45		663.77
1753	12/22	Park & Shop	274.48		938.25
	1/02	ATM	50.00		988.25
	1/09	Rebate		21.46	1009.71

The final balance of the checking account is 1009.71 dollars.

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182) A pet store is offering a sale of $5 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 = 88. What does your result mean in this situat

Retail and Sale Prices	
Retail Price (dollars)	Sale Price (dollars)
50	
70	
90	
110	
r	

A) (i)

Retail and Sale Prices	
Retail Price (dollars)	Sale Price (dollars)
50	50 + (−5)
70	70 + (−7.5)
90	90 + (−10)
110	110 + (−12.5)
r	r + (−15)

(ii) 88 + (−15) = 73; This means that if the pet bed or pet carrier was originally retail priced at $88, it would be on sale for $73.

B) (i)

Retail and Sale Prices	
Retail Price (dollars)	Sale Price (dollars)
50	50 + 5
70	70 + 5
90	90 + 5
110	110 + 5
r	r + 5

(ii) 88 + 5 = 93; This means that if the pet bed or pet carrier was originally retail priced at $88, it would be now cost $93.

C) (i)

Retail and Sale Prices	
Retail Price (dollars)	Sale Price (dollars)
50	50 + (−5)
70	70 + (−10)
90	90 + (−15)
110	110 + (−20)
r	r + (−25)

(ii) 88 + (−25) = 63; This means that if the pet bed or pet carrier was originally retail priced at $88, it would be on sale for $63.

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D) (i)

Retail and Sale Prices	
Retail Price (dollars)	Sale Price (dollars)
50	50 + (−5)
70	70 + (−5)
90	90 + (−5)
110	110 + (−5)
r	r + (−5)

(ii) 88 + (−5) = 83; This means that if the pet bed or pet carrier was originally retail priced at $88, it would be on sale for $83.

183) On part of a scenic tour of underground caves, Dave and Neil started at an elevation of −45 feet. They then rose 22 feet. What was their elevation at this point? 183) _____
A) 23 ft B) 67 ft C) −67 ft D) −23 ft

184) Sean has $317 in his savings account. After he withdraws $46, what will his balance be? 184) _____
A) −$363 B) $363 C) $271 D) −$271

185) Mr Lu Yi owed $100 on his bank credit card. He charged another item costing $24 . Find the amount that Lu Yi owed the bank. 185) _____
A) $74 B) $127 C) $124 D) $76

186) At the start of a chemistry experiment, Sarah measured the temperature of a liquid to be −8°C. At the end of the experiment, it had risen 27°C. What was the liquid's temperature at the end of the experiment? 186) _____
A) −35°C B) 35°C C) 19°C D) −19°C

187) The temperature at 5:00 was −3°C. Four hours later, it was −8°C. What was the change in temperature? 187) _____
A) 11°C B) −11°C C) −5°C D) 5°C

188) A corporation's bank account has $7722 in it when the treasurer writes checks for $340, $653, and $4365. Then deposits of $2177 and $157 are made. How much is in the account? Is it overdrawn? 188) _____
A) $10,746, no B) $4698, no C) $9063, no D) −$10,746, yes

Find the difference.

189) 9 − 4 189) _____
A) 13 B) −1 C) 5 D) −5

190) −7 − 8 190) _____
A) 1 B) 15 C) −1 D) −15

191) −4 − (−1) 191) _____
A) −3 B) 3 C) −5 D) 5

192) 4 − (−1) 192) _____
A) −5 B) −3 C) 3 D) 5

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193) 17 – 17 193) _____
A) 0 B) 1 C) –17 D) 17

194) 0 – 5 194) _____
A) 0 B) 5 C) –5 D) –(–5)

195) –2 – 2 195) _____
A) –2 B) –4 C) 4 D) 0

196) –5 – (–5) 196) _____
A) 1 B) 0 C) –5 D) 5

197) 0 – (–20) 197) _____
A) –20 B) 0 C) 40 D) 20

198) 6 – (–6) 198) _____
A) 0 B) 6 C) 12 D) –12

199) –10 – 26 199) _____
A) –16 B) 36 C) 16 D) –36

200) –7 – (–26) 200) _____
A) –33 B) –19 C) 33 D) 19

201) –50 – 110 201) _____
A) –60 B) 160 C) –160 D) 60

202) –50 – (– 130) 202) _____
A) –180 B) 80 C) 180 D) –80

203) –714 – (–486) 203) _____
A) –228 B) 228 C) –1200 D) 1200

204) 827 – 293 204) _____
A) –1120 B) –534 C) 534 D) 434

205) – 372 – 528 205) _____
A) –156 B) –56 C) –900 D) 156

206) – 171 – (–735) 206) _____
A) –564 B) –906 C) –464 D) 564

207) –952 – (–3159) 207) _____
A) –2207 B) 2207 C) –4111 D) 4111

208) –565 – 737 208) _____
A) 172 B) –72 C) –1302 D) –172

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209) $-22.6 - (-7.8)$ 209) _____

A) -14.8 B) 30.4 C) 14.8 D) -30.4

210) $-10.4 - 2.4$ 210) _____

A) -8 B) 12.8 C) 8 D) -12.8

211) $22.2 - 11.1$ 211) _____

A) 33.3 B) -33.3 C) 11.1 D) -11.1

212) $-47.54 - (-12.37)$ 212) _____

A) 35.17 B) -35.17 C) -59.91 D) 59.91

213) $(-0.80) - (0.24)$ 213) _____

A) -1.04 B) 0.66 C) 0.56 D) -0.192

214) $0.60 - (-0.01)$ 214) _____

A) 0.006 B) 0.71 C) 0.59 D) 0.61

215) $-\frac{1}{4} - \frac{1}{24}$ 215) _____

A) $-\frac{1}{14}$ B) $-\frac{1}{12}$ C) $-\frac{29}{96}$ D) $-\frac{7}{24}$

216) $\frac{7}{9} - \frac{1}{8}$ 216) _____

A) $\frac{2}{3}$ B) $\frac{47}{9}$ C) $\frac{1}{12}$ D) $\frac{47}{72}$

217) $\frac{1}{7} - \left(-\frac{1}{2}\right)$ 217) _____

A) $-\frac{9}{14}$ B) $-\frac{5}{14}$ C) $\frac{9}{14}$ D) $-\frac{5}{56}$

218) $-\frac{1}{3} - \frac{1}{2}$ 218) _____

A) $-\frac{5}{24}$ B) $-\frac{1}{6}$ C) $-\frac{5}{6}$ D) $\frac{5}{6}$

219) $-\frac{1}{3} - \left(-\frac{1}{2}\right)$ 219) _____

A) $-\frac{5}{36}$ B) $\frac{1}{6}$ C) $-\frac{5}{6}$ D) $\frac{5}{6}$

220) $-\frac{1}{5} - \left(-\frac{3}{10}\right)$ 220) _____

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

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221) $\frac{2}{3} - \left(-\frac{5}{27}\right)$ 221) _____

A) $\frac{23}{27}$ B) $-\frac{1}{9}$ C) $-\frac{23}{27}$ D) $\frac{1}{27}$

222) $\frac{1}{6} - \left(-\frac{2}{15}\right)$ 222) _____

A) $-\frac{1}{6}$ B) $-\frac{3}{10}$ C) $\frac{7}{30}$ D) $\frac{3}{10}$

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

223) −124.69 − 41.62 223) _____

A) 166.31 B) 83.07 C) −83.07 D) −166.31

224) −105.54 − 45.04 224) _____

A) 150.58 B) −60.50 C) 60.50 D) −150.58

225) −11,354.06 − 93,313.222 225) _____

A) −11,354.06 B) 81,959.16 C) −104,667.28 D) −81,959.16

226) $-\frac{23}{36} - \frac{12}{53}$ 226) _____

A) 0.11 B) −0.41 C) −0.87 D) 0.00

227) $-\frac{79}{99} - \left(-\frac{40}{81}\right)$ 227) _____

A) −0.30 B) −1.29 C) −0.22 D) −2.17

Solve the problem.

228) The temperature at 5:00 was −2°C. Four hours later, it was −13°C. What was the change in temperature? 228) _____

A) −11°C B) 11°C C) −15°C D) 15°C

229) The temperature on a March morning is −5°F at 3a.m. If the temperature drops 2° by 4 a.m., rises 6° by 5 a.m., and then drops 3° by 6a.m., find the temperature at 6 a.m. 229) _____

A) 16°F B) −4°F C) 4°F D) −16°F

230) At the start of a chemistry experiment, Sarah measured the temperature of a liquid to be −17°C. At the end of the experiment, it had risen 45°C. What was the liquid's temperature at the end of the experiment? 230) _____

A) −62°C B) 28°C C) −28°C D) 62°C

231) Sean has $254 in his savings account. After he withdraws $58, what will his balance be? 231) _____

A) $312 B) −$312 C) −$196 D) $196

232) Raya has $175 in her checking account. She writes a check for $38, makes a deposit for $71, and then writes another check for $133. Find the amount left in her account. 232) _____

A) 67 dollars B) 75 dollars C) −75 dollars D) −67 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	–1.1
2012–2013	–0.2
2013–2014	0.0
2014–2015	1.3
2015–2016	2.1
2016–2017	1.9

(i) If there were $8.7 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) 24 billion;
(ii) From 2013 to 2017;
(iii) From 2011 to 2014

B) (i) 24 billion;
(ii) From 2014 to 2017;
(iii) From 2011 to 2013

C) (i) $12.7 billion;
(ii) From 2014 to 2017;
(iii) From 2011 to 2013

D) (i) $12.7 billion;
(ii) From 2013 to 2017;
(iii) From 2011 to 2014

234) Last year, enrollment at an art school was 15,079 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 = –500. What does your result mean in this situa

Changes in Enrollments and Current Enrollments	
Change in Enrollment	Current Enrollment
70	
105	
210	
315	
315	
525	
c	

A) (i)

Changes in Enrollments and Current Enrollments	
Change in Enrollment	Current Enrollment
70	15,079 – 70
105	15,079 – 105
210	15,079 – 210
315	15,079 – 315
315	15,079 – 315
525	15,079 – 525
c	15,079 – c

(ii) 15,579; This means that the current enrollment is 15,579 due to an increase in enrollment of 500 students in the past year.

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B) (i)

Changes in Enrollments and Current Enrollments	
Change in Enrollment	Current Enrollment
70	70 + 15,079
105	105 + 15,079
210	210 + 15,079
315	315 + 15,079
315	315 + 15,079
525	525 + 15,079
c	c + 15,079

(ii) 14,579; This means that the current enrollment is 14,579 due to a decrease in enrollment of 500 students in the past year.

C) (i)

Changes in Enrollments and Current Enrollments	
Change in Enrollment	Current Enrollment
70	70 – 15,079
105	105 – 15,079
210	210 – 15,079
315	315 – 15,079
315	315 – 15,079
525	525 – 15,079
c	c – 15,079

(ii) –15,579; This means that the current enrollment is –15,579 due to a decrease in enrollment of 500 students in the past year.

D) (i)

Changes in Enrollments and Current Enrollments	
Change in Enrollment	Current Enrollment
70	70 + 15,079
105	105 + 15,079
210	210 + 15,079
315	315 + 15,079
420	315 + 15,079
525	525 + 15,079
c	630c + 15,079

(ii) 330,079; This means that the current enrollment is 330,079 due to an increase in enrollment of 315,000 students in the past year.

Evaluate the expression for the given replacement values.

235) $x + y$, for $x = -10$ and $y = -9$ 235) _____

A) 1 B) –1 C) 19 D) –19

236) $y + x$, for $x = 1$ and $y = -7$ 236) _____

A) –8 B) –6 C) 6 D) 8

237) $x - y$ for $x = -25$, $y = 18$ 237) _____

A) 7 B) 43 C) –43 D) –7

238) $x - y$ for $x = -12$, $y = -8$ 238) _____

A) 4 B) –4 C) –20 D) 20

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239) $x - y$ for $x = 9, y = -27$ 239) _____

A) −18 B) 18 C) 36 D) −36

240) $x - y$ for $x = -6, y = -20$ 240) _____

A) −14 B) −26 C) 26 D) 14

241) $x - y$ for $x = 9, y = 15$ 241) _____

A) −24 B) 6 C) 24 D) −6

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

242) 26 less than a number 242) _____

A) $x - 26$ B) $26 - x$ C) $x + 26$ D) $26 \div x$

243) −19 minus a number 243) _____

A) $x - 19$ B) $x + 19$ C) $-19 - x$ D) $-19 \div x$

244) Subtract 20 from a number 244) _____

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

245) Subtract −52 from a number. 245) _____

A) $-52x$ B) $x - (-52)$ C) $52 - x$ D) −52

246) The difference of a number and −37 246) _____

A) $-37 + x$ B) $-37x$ C) $x - (-37)$ D) $-37 - x$

247) Nine less than a number 247) _____

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

248) The number decreased by −15 248) _____

A) $-15 - x$ B) $-15 + x$ C) $-15 \div x$ D) $x - (-15)$

249) 64 decreased by a number 249) _____

A) $64 \div x$ B) $64 + x$ C) $x - 64$ D) $64 - x$

250) −68 decreased by a number 250) _____

A) $-68 \div x$ B) $-68 - x$ C) $-68 + x$ D) $x - (-68)$

251) A number decreased by six 251) _____

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

Write the percentage as a decimal number.

252) 2% 252) _____

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

253) 16% 253) _____

A) 0.016 B) 16.0 C) 1.6 D) 0.16

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254) 40% 254) _____
A) 0.04 B) 0.4 C) 4 D) 0.29

255) 50% 255) _____
A) 50.0 B) 0.5 C) 0.05 D) 5

256) 47% 256) _____
A) 0.047 B) 47.0 C) 4.7 D) 0.47

257) 2.1% 257) _____
A) 0.21 B) 0.021 C) 2.1 D) 21.0

258) 35.3% 258) _____
A) 35.3 B) 3.53 C) 0.353 D) 0.0353

259) 0.1% 259) _____
A) 0.001 B) 0.1 C) 0.01 D) 0.002

Write the decimal number as a percentage.

260) 0.6 260) _____
A) 600% B) 0.6% C) 0.06% D) 60%

261) 0.64 261) _____
A) 64% B) 0.064% C) 6.4% D) 640%

262) 0.067 262) _____
A) 0.67% B) 67% C) 0.067% D) 6.7%

263) 0.747 263) _____
A) 0.747% B) 74.7% C) 747% D) 0.0747%

264) 0.004 264) _____
A) 0.04% B) 0.4% C) 4% D) 0.004%

Solve the problem.

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

266) Find 10% of 300 boxes. 266) _____
A) 3 boxes B) 30 boxes C) 0.3 boxes D) 300 boxes

267) Find 5% of $700. 267) _____
A) $0.35 B) $350 C) $3.50 D) $35

268) Find 14% of $246,000. 268) _____
A) $17,571 B) $34,440 C) $344 D) $3444

269) Find 60% of 290 accountants. 269) _____
A) 116 accountants B) 174 accountants C) 21 accountants D) 483 accountants

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270) Find 8.1% of 4000 computers. 270) _____

A) 3240 computers B) 32,400 computers

C) 32 computers D) 324 computers

271) Find 40% of 1415 oz. 271) _____

A) 56,600 oz B) 5660 oz C) 56.6 oz D) 566 oz

272) Find 89% of 205 km. 272) _____

A) 18,245 km B) 182.45 km C) 18.25 km D) 1824.5 km

Find the product.

273) –10(5) 273) _____

A) –40 B) –55 C) 40 D) –50

274) 7(–1) 274) _____

A) 7 B) –14 C) –7 D) 3

275) 7(–7) 275) _____

A) –149 B) –490 C) –56 D) –49

276) –14(0) 276) _____

A) 0 B) –14 C) –28 D) 14

277) –17(–17) 277) _____

A) –289 B) 289 C) –306 D) 306

278) 4(8) 278) _____

A) 32 B) 22 C) 320 D) 28

279) –1.8(–15) 279) _____

A) 16.8 B) –13.2 C) –16.8 D) 27

280) 45(–66) 280) _____

A) –2960 B) 2980 C) –2970 D) 3070

281) –45(–124) 281) _____

A) 5590 B) 5580 C) –5580 D) –5590

282) $\left(-\frac{1}{5}\right)\left(\frac{7}{9}\right)$ 282) _____

A) $-\frac{4}{7}$ B) $-\frac{7}{45}$ C) $\frac{4}{7}$ D) $\frac{7}{45}$

283) $\left(-\frac{3}{8}\right)\left(-\frac{3}{4}\right)$ 283) _____

A) $-\frac{9}{32}$ B) $-\frac{1}{2}$ C) $\frac{1}{2}$ D) $\frac{9}{32}$

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284) $\frac{17}{8}\left(-\frac{4}{9}\right)$ 284) _____

A) $-\frac{17}{18}$ B) $-\frac{15}{18}$ C) $\frac{15}{18}$ D) $\frac{17}{18}$

285) $\left(-\frac{1}{6}\right)\left(-\frac{3}{5}\right)$ 285) _____

A) $-\frac{4}{11}$ B) $\frac{3}{8}$ C) $-\frac{1}{10}$ D) $\frac{1}{10}$

Find the quotient.

286) $-24 \div 4$ 286) _____

A) $-\frac{1}{6}$ B) -240 C) 6 D) -6

287) $-28 \div (-4)$ 287) _____

A) -7 B) $\frac{1}{7}$ C) 7 D) -280

288) $70 \div (-10)$ 288) _____

A) $-\frac{1}{7}$ B) -700 C) 7 D) -7

289) $\frac{-30}{3}$ 289) _____

A) 10 B) -300 C) $-\frac{1}{10}$ D) -10

290) $\frac{-15}{-5}$ 290) _____

A) -3 B) 3 C) -150 D) $\frac{1}{3}$

291) $\frac{60}{-10}$ 291) _____

A) -6 B) 6 C) -600 D) $-\frac{1}{6}$

292) $-13 \div (-1)$ 292) _____

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

293) $-21 \div 21$ 293) _____

A) -1 B) -21 C) 0 D) 1

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294) $-69 \div 3$ 294) _____

A) -33 B) $-\frac{1}{23}$ C) 23 D) -23

295) $180 \div (-9)$ 295) _____

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

296) $-38 \div (-2)$ 296) _____

A) -19 B) 19 C) 9 D) $\frac{1}{19}$

297) $-371 \div (53)$ 297) _____

A) -17 B) 7 C) $-\frac{1}{7}$ D) -7

298) $153 \div (-51)$ 298) _____

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

299) $\frac{-26}{-2}$ 299) _____

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

300) $468 \div (-36)$ 300) _____

A) -14 B) 13 C) -13 D) 14

301) $-16.4 \div (-4)$ 301) _____

A) $-\frac{1}{4.1}$ B) -4.1 C) 4.1 D) 6.1

302) $55.3 \div (-7)$ 302) _____

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

303) $-97.79 \div 7$ 303) _____

A) -13.97 B) 13.97 C) 14.27 D) -14.27

304) $-16.53 \div (-8.7)$ 304) _____

A) -0.19 B) 0.19 C) -1.9 D) 1.9

305) $\frac{6}{8} \div (-10)$ 305) _____

A) $-\frac{40}{3}$ B) $\frac{3}{40}$ C) $-\frac{15}{2}$ D) $-\frac{3}{40}$

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306) $-7 \div \left(-\frac{3}{19}\right)$ 306) _____

A) $-\frac{3}{133}$ B) $\frac{3}{133}$ C) $\frac{133}{3}$ D) $-\frac{133}{3}$

307) $\frac{5}{12} \div \frac{3}{14}$ 307) _____

A) $\frac{35}{18}$ B) $\frac{18}{35}$ C) $\frac{5}{12}$ D) $\frac{5}{56}$

308) $\frac{4}{5} \div \left(-\frac{7}{8}\right)$ 308) _____

A) $\frac{35}{32}$ B) $-\frac{7}{10}$ C) $-\frac{32}{35}$ D) $\frac{10}{7}$

309) $\left(-\frac{5}{7}\right) \div \left(-\frac{8}{3}\right)$ 309) _____

A) $-\frac{21}{40}$ B) $-\frac{56}{15}$ C) $\frac{15}{56}$ D) $\frac{40}{21}$

310) $-\frac{4}{9} \div \frac{6}{5}$ 310) _____

A) $-\frac{15}{8}$ B) $\frac{8}{15}$ C) $-\frac{27}{10}$ D) $-\frac{10}{27}$

311) $\left(-\frac{5}{13}\right) \div \left(-\frac{35}{52}\right)$ 311) _____

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

312) $-177.6 \div (-12)$ 312) _____

A) -148 B) 14.8 C) 15.8 D) -158

313) $-946.66 \div 28.6$ 313) _____

A) 33.1 B) 3.31 C) -33.1 D) -3.31

314) $-471.63 \div 0$ 314) _____

A) undefined B) -471.63 C) $-\frac{1}{471.63}$ D) 0

Simplify.

315) $\frac{-28}{-7}$ 315) _____

A) $\frac{1}{4}$ B) -4 C) -280 D) 4

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316) $\frac{33}{-77}$ 316) _____

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

317) $\frac{40}{-4}$ 317) _____

A) −400 B) 10 C) −10 D) $-\frac{1}{10}$

318) $\frac{-5}{-1}$ 318) _____

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

319) $\frac{-63}{72}$ 319) _____

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

320) $\frac{198}{-9}$ 320) _____

A) $-\frac{1}{22}$ B) −32 C) −22 D) 22

321) $\frac{-88}{-4}$ 321) _____

A) $\frac{1}{22}$ B) −22 C) 12 D) 22

322) $\frac{-30}{-32}$ 322) _____

A) $-\frac{15}{16}$ B) $-\frac{2}{16}$ C) $\frac{2}{16}$ D) $\frac{15}{16}$

Perform the indicated operation.

323) $\frac{3}{-4} + \left(\frac{-1}{12}\right)$ 323) _____

A) $-\frac{5}{6}$ B) $-\frac{1}{3}$ C) $-\frac{41}{48}$ D) $-\frac{1}{4}$

324) $\frac{1}{2} - \left(\frac{3}{-10}\right)$ 324) _____

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

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325) $\frac{6}{9} + \left(\frac{1}{-7}\right)$ 325) _____

A) $\frac{11}{3}$ B) $\frac{5}{63}$ C) $\frac{11}{21}$ D) $\frac{5}{9}$

326) $\frac{6}{-7} - \left(\frac{-4}{9}\right)$ 326) _____

A) $-\frac{2}{7}$ B) $\frac{26}{63}$ C) $-\frac{26}{63}$ D) $\frac{26}{7}$

327) $\frac{1}{4} - \left(\frac{-3}{10}\right)$ 327) _____

A) $\frac{11}{20}$ B) $-\frac{7}{20}$ C) $-\frac{11}{20}$ D) $\frac{2}{5}$

328) $\frac{1}{-10} + \left(\frac{5}{-8}\right)$ 328) _____

A) $\frac{29}{40}$ B) $-\frac{9}{40}$ C) $-\frac{29}{40}$ D) $\frac{9}{40}$

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

329) 937.585 ÷ (−44.73) 329) _____

A) 20.96 B) −20.96 C) −0.05 D) 0.05

330) $-\frac{29}{56}\left(-\frac{329}{772}\right)$ 330) _____

A) −0.22 B) 4.53 C) 0.22 D) −4.53

Evaluate the expression for the given value or values.

331) 8x, for x = −7 331) _____

A) $-\frac{7}{8}$ B) $-\frac{8}{7}$ C) 56 D) −56

332) −3x, for x = −7 332) _____

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

333) xy, for x = −3, y = −9 333) _____

A) −27 B) 27 C) 12 D) $\frac{9}{3}$

334) xy, for x = −7, y = 3 334) _____

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

335) −xy for x = 5, y = −52 335) _____

A) 257 B) −257 C) −260 D) 260

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336) $-xy$ for $x = 5, y = 84$ 336) _____

A) 409 B) −420 C) 420 D) −409

337) $-xy$ for $x = -7, y = -24$ 337) _____

A) 168 B) −151 C) −168 D) 151

338) $\frac{y}{z}$, for $y = -63, z = 7$ 338) _____

A) 9 B) 7 C) −7 D) −9

339) $\frac{z}{y}$, for $y = -20, z = 5$ 339) _____

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

340) $\frac{z}{y}$, for $y = -27, z = -9$ 340) _____

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

341) $-\frac{y}{z}$, for $y = -32, z = 4$ 341) _____

A) 8 B) −4 C) −8 D) 4

342) $-\frac{y}{z}$, for $y = -18, z = -2$ 342) _____

A) 2 B) −2 C) 9 D) −9

343) $\frac{x}{y}$ for $x = 156, y = -3$ 343) _____

A) −52 B) 55 C) 52 D) −55

344) $-\frac{x}{y}$ for $x = -480, y = 8$ 344) _____

A) −63 B) 60 C) −60 D) 63

345) $\frac{y}{x}$ for $x = 312, y = -6$ 345) _____

A) 52 B) $\frac{1}{52}$ C) $-\frac{1}{52}$ D) −52

346) $\frac{y}{x}$ for $x = -531, y = -9$ 346) _____

A) $-\frac{1}{59}$ B) $\frac{1}{59}$ C) 59 D) −59

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347) $-\frac{y}{x}$ for $x = -330$, $y = -6$ 347) _____

A) $\frac{1}{55}$ B) 55 C) $-\frac{1}{55}$ D) −55

348) $\frac{x}{y}$ for $x = -424$, $y = 0$ 348) _____

A) 0 B) 424 C) −424 D) undefined

349) $\frac{y}{x}$ for $x = -324$, $y = 0$ 349) _____

A) 324 B) 0 C) −324 D) undefined

350) $-\frac{y}{x}$ for $x = -364$, $y = 0$ 350) _____

A) 364 B) 0 C) −364 D) undefined

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

351) −5 times a number 351) _____

A) 5x B) −5x C) $-5 \div x$ D) $-5 + x$

352) The product of −3 and a number 352) _____

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

353) A number divided by −68 353) _____

A) −68x B) $x \div (-68)$ C) $-68 \div x$ D) $x - 68$

354) The quotient of −79 and a number 354) _____

A) $x - 79$ B) $\frac{-79}{x}$ C) $79 - x$ D) $\frac{x}{-79}$

355) Three divided by a number 355) _____

A) $3 - x$ B) $x \div (-3)$ C) −3x D) $3 \div x$

Write the ratio as a fraction.

356) the ratio of 9 to 21 356) _____

A) $\frac{9}{7}$ B) $\frac{3}{7}$ C) $\frac{9}{3}$ D) $\frac{3}{21}$

357) the ratio of 12 to 32 357) _____

A) $\frac{12}{8}$ B) $\frac{3}{8}$ C) $\frac{3}{32}$ D) $\frac{8}{32}$

358) the ratio of 78 to 102 358) _____

A) $\frac{6}{102}$ B) $\frac{13}{102}$ C) $\frac{13}{17}$ D) 6

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Solve the problem.

359) A science experiment requires 434 milliliters of substance X and 15.5 milliliters of substance Y. Find the unit ratio of substance X to substance Y. What does your result mean in this situation? 359) _____

A) $\frac{28.5}{1}$; For every ml of substance Y used, 28.5 ml of substance X must be used.

B) $\frac{1}{28}$; For every ml of substance X used, 28 ml of substance Y must be used.

C) $\frac{1}{27.5}$; For every ml of substance X used, 27.5 ml of substance Y must be used.

D) $\frac{28}{1}$; For every ml of substance Y used, 28 ml of substance X must be used.

360) There were 871 billionaires in a certain country this year and 81 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) $\frac{11.4}{1}$; The number of billionaires this year was 11.4 times greater than two years ago.

C) $\frac{10.3}{1}$; The number of billionaires this year was 10.3 times greater than two years ago.

D) $\frac{10.8}{1}$; The number of billionaires this year was 10.8 times greater than two years ago.

361) A person has credit card balances of –4490 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) $\frac{89.80}{1}$; For each \$1 he pays to his Store B account, he should pay \$89.80 to his Store A account.

B) $\frac{83.50}{1}$; For each \$1 he pays to his Store B account, he should pay \$83.50 to his Store A account.

C) $\frac{93.40}{1}$; For each \$1 he pays to his Store B account, he should pay \$93.40 to his Store A account.

D) $\frac{89.85}{1}$; For each \$1 he pays to his Store B account, he should pay \$89.85 to his Store A account.

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362) The average number of viewers per day for TV Show A is 2.0 million viewers while the average number of viewers per day for TV Show B is 19.0 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) $\frac{9.5}{1}$; For every viewer watching TV Show A, there are about 9.5 viewers watching TV Show B.

B) $\frac{19.5}{1}$; For every viewer watching TV Show A, there are about 19.5 viewers watching TV Show B.

C) $\frac{9.6}{1}$; For every viewer watching TV Show A, there are about 9.6 viewers watching TV Show B.

D) $\frac{2.25}{1}$; For every viewer watching TV Show A, there are about 2.25 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	515,540	442,513
Region L	21,420,644	375,805
Region M	5,756,800	16,000
Region N	8,008,770	9096
Region O	10,441,005	65,125

(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: $\frac{57 \text{ people}}{\text{square mile}}$; Region M: $\frac{360 \text{ people}}{\text{square mile}}$; Region N: $\frac{880 \text{ people}}{\text{square mile}}$; Region O: $\frac{160 \text{ people}}{\text{square mile}}$
(ii) Region N has the greatest population density.
(iii) Region K has the least population density.

B) (i) Region K: $\frac{2330 \text{ people}}{\text{square mile}}$; Region L: $\frac{114 \text{ people}}{\text{square mile}}$; Region M: $\frac{971 \text{ people}}{\text{square mile}}$; Region N: $\frac{880 \text{ people}}{\text{square mile}}$; Region O: $\frac{321 \text{ people}}{\text{square mile}}$
(ii) Region K has the greatest population density.
(iii) Region L has the least population density.

C) (i) Region K: $\frac{583 \text{ people}}{\text{square mile}}$; Region L: $\frac{1425 \text{ people}}{\text{square mile}}$; Region M: $\frac{360 \text{ people}}{\text{square mile}}$; Region N: $\frac{440 \text{ people}}{\text{square mile}}$; Region O: $\frac{160 \text{ people}}{\text{square mile}}$
(ii) Region L has the greatest population density.
(iii) Region K has the least population density.

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D) (i) Region K: $\frac{2 \text{ people}}{\text{square mile}}$; Region L: $\frac{57 \text{ people}}{\text{square mile}}$; Region M: $\frac{540 \text{ people}}{\text{square mile}}$;

Region N: $\frac{880 \text{ people}}{\text{square mile}}$; Region O: $\frac{1603 \text{ people}}{\text{square mile}}$

(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 $17.99 per DVD. What is the new balance? 364) _____

A) –19.99 dollars B) –17.99 dollars C) 35.98 dollars D) –35.98 dollars

Perform the exponentiation.

365) 1^{12} 365) _____

A) $\frac{1}{12}$ B) 1 C) 12 D) 1.08333333

366) 8^1 366) _____

A) 8 B) 1.125 C) $\frac{1}{8}$ D) 1

367) $(-1)^4$ 367) _____

A) 4 B) –4 C) 1 D) –1

368) 7^2 368) _____

A) 50 B) 14 C) 49 D) 15

369) $(-5)^2$ 369) _____

A) 25 B) –25 C) –10 D) 10

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

A) 64 B) 12 C) –64 D) –12

371) -4^3 371) _____

A) 12 B) –12 C) –64 D) 64

372) 10^3 372) _____

A) 729 B) 1000 C) 30 D) 59,049

373) 5^4 373) _____

A) 1024 B) 625 C) 20 D) 125

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

A) –25 B) 25 C) –625 D) 625

375) 10^5 375) _____

A) 100,000 B) 9,765,625 C) 1,000,000 D) 50

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376) $\left(\frac{3}{5}\right)^3$ 376) _____

A) 3.6 B) $\frac{125}{27}$ C) $\frac{27}{5}$ D) $\frac{27}{125}$

377) $\left(\frac{1}{5}\right)^2$ 377) _____

A) $\frac{1}{10}$ B) $\frac{1}{25}$ C) $\frac{2}{5}$ D) $\frac{1}{7}$

378) $\left(-\frac{7}{5}\right)^3$ 378) _____

A) $-\frac{343}{125}$ B) $-\frac{343}{5}$ C) $\frac{49}{25}$ D) $\frac{343}{125}$

379) $\left(-\frac{7}{5}\right)^2$ 379) _____

A) $\frac{49}{5}$ B) $-\frac{49}{25}$ C) $-\frac{49}{5}$ D) $\frac{49}{25}$

Perform the indicated operations.

380) $64 + 5 - 4$ 380) _____

A) 165 B) 9 C) 65 D) 73

381) $2 \cdot 7 - 6$ 381) _____

A) 8 B) 2 C) 84 D) 20

382) $22 \cdot 5 \div 6$ 382) _____

A) 660 B) 33 C) 18.33 D) 104

383) $-6 \cdot 3 + 10$ 383) _____

A) 42 B) −78 C) −8 D) −28

384) $240 \div 6 - 3$ 384) _____

A) 80 B) 237 C) 37 D) 231

385) $24 + 11 \cdot 18$ 385) _____

A) 53 B) 630 C) 282 D) 222

386) $-11 + 40 \div (-4)$ 386) _____

A) 21 B) −7 C) 7 D) −21

387) $\frac{8+7}{7+3}$ 387) _____

A) $\frac{15}{4}$ B) $\frac{3}{2}$ C) $\frac{1}{10}$ D) $\frac{1}{4}$

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388) $\frac{2-7}{7-2}$ 388) _____

A) $\frac{2}{7}$ B) –1 C) $-\frac{2}{7}$ D) –5

389) $5 \cdot 16 + 2 \cdot 10$ 389) _____

A) 100 B) 900 C) 820 D) 180

390) $7 + 28 \cdot 5 - 21$ 390) _____

A) 126 B) –560 C) 19 D) 154

391) $-6(2) - (-14) \cdot 9$ 391) _____

A) 1 B) 114 C) –138 D) –114

392) $28 + 15 \cdot 30 - (-7)$ 392) _____

A) 471 B) 1297 C) 80 D) 485

393) $5 + (-26)(-9) + (-9)$ 393) _____

A) 270 B) 230 C) 0 D) 31

394) $90 - 24 \cdot 3 + 240 \div (-12)$ 394) _____

A) 178 B) –26 C) –1336 D) –2

395) $96 - 26 \cdot 3 + 156 \div 13$ 395) _____

A) 222 B) 18 C) 30 D) 856

396) $\frac{3(7)+3}{3-8(3)}$ 396) _____

A) $-\frac{8}{5}$ B) $-\frac{10}{7}$ C) $-\frac{8}{7}$ D) $\frac{8}{7}$

397) $20 \div 2(9 - 5)$ 397) _____

A) 40 B) 1800 C) –3 D) 12

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

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

399) $7 \cdot 3 + 5(9 + 5) + 8$ 399) _____

A) 792 B) 79 C) 131 D) 99

400) $210 \div 7 - (1 + 1)$ 400) _____

A) 28 B) 30 C) 42 D) 29

401) $48 \div 8 \cdot (14 - 5)$ 401) _____

A) 54 B) 79 C) 89 D) 114

402) $-8 + (5 \cdot 4 + 30) \div 5$ 402) _____

A) 18 B) –2 C) 2 D) –6

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403) $12 \cdot 9 - (12 - 9) \div 3 - (8 - 6)$ 403) _____

A) 27 B) 33 C) 93 D) 105

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

A) 75 B) 141 C) 43 D) 105

405) $(6 + 7)^2$ 405) _____

A) 169 B) 55 C) 85 D) 43

406) $4^4 + 6^3$ 406) _____

A) 232 B) 34 C) 472 D) 274

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

A) 85 B) 8 C) 77 D) 60

408) $6^3 - (-2)^4$ 408) _____

A) 26 B) 2 C) 200 D) 232

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

A) 0 B) 162 C) 128 D) 24

410) $(-5)^2 - (-4)^3$ 410) _____

A) −89 B) 89 C) −39 D) 39

411) $5 + 4^2 \cdot 8 - (-8)$ 411) _____

A) 176 B) 25 C) 29 D) 141

412) $7^2 - 6(4) + 15 \div 3$ 412) _____

A) 9 B) $\frac{40}{3}$ C) 294 D) 30

413) $8 + 7^2 - (-3) \cdot 7$ 413) _____

A) 378 B) 175 C) 78 D) 36

414) $(13 - 11)^3 + (6 + 5)^3$ 414) _____

A) 349 B) 1207 C) 1339 D) 2197

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

A) 104 B) −104 C) 96 D) −96

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

A) 488 B) 113 C) 157 D) 589

417) $10^2 + 9 \cdot 7 - (7 + 2 \cdot 2)$ 417) _____

A) 752 B) 160 C) 152 D) 145

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418) $\frac{193 + 7}{3^2 - 4}$ 418) _____

A) 38 B) 100 C) 60 D) 40

419) $\frac{28 \cdot (9 - 6) - 18}{3^2 - 3}$ 419) _____

A) 14 B) 15 C) 22 D) 11

420) $(-10) \div (-5) \cdot \left(-\frac{1}{8}\right)$ 420) _____

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

421) $\frac{1}{8} + \frac{1}{3} \cdot \frac{1}{4}$ 421) _____

A) $\frac{7}{6}$ B) $\frac{1}{48}$ C) $\frac{5}{24}$ D) $\frac{11}{96}$

422) $-\frac{1}{25} + \frac{2}{5} \div \frac{1}{5}$ 422) _____

A) $\frac{199}{50}$ B) $\frac{49}{50}$ C) $\frac{49}{25}$ D) $-\frac{51}{25}$

423) $-\frac{1}{5} + \frac{7}{8} \div \frac{1}{2}$ 423) _____

A) $\frac{17}{5}$ B) $\frac{31}{20}$ C) $-\frac{39}{20}$ D) $\frac{31}{40}$

424) $\frac{4}{5} \cdot \frac{1}{7} + \frac{5}{6} \cdot \frac{1}{5}$ 424) _____

A) $\frac{59}{110}$ B) $\frac{11}{42}$ C) $\frac{59}{160}$ D) $\frac{59}{210}$

425) $\frac{1}{3} + \frac{2}{5} \div \left(-\frac{3}{4}\right) \cdot \frac{5}{6}$ 425) _____

A) $-\frac{22}{27}$ B) $-\frac{88}{75}$ C) $-\frac{1}{9}$ D) $-\frac{23}{75}$

426) $\frac{1}{3} \div \frac{1}{3} - 8 \cdot \left(\frac{1}{4}\right)^2$ 426) _____

A) $\frac{1}{6}$ B) $\frac{1}{2}$ C) $-\frac{7}{16}$ D) – 3

427) $95 - 7 \cdot 9 + 154 \cdot \left(-\frac{1}{14}\right)$ 427) _____

A) 781 B) –18 C) –1025 D) 21

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Use a calculator to perform the indicated operation.

428) $18.08 + 50.9(22.1) - 3.46 \div 1.42$ (round to two decimal places) 428) _____

A) 802.47 B) −1104.37 C) 1140.53 D) 1522.02

429) $\dfrac{(37.82)(-9.26) + 41.8}{72.72 - 21.56}$ (round to two decimal places) 429) _____

A) −6.03 B) 24.06 C) −25.80 D) −4.16

430) $16.5 \div 0.4(0.3) + (1.4)^2$ 430) _____

A) 12.535 B) 15.835 C) 14.335 D) 18.135

Evaluate the expression for the given value or values.

431) $9x + 9$ for $x = 5$ 431) _____

A) 54 B) 36 C) 18 D) 90

432) $-10x^2$ for $x = 2$ 432) _____

A) 40 B) 400 C) −40 D) −400

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

A) −64 B) 64 C) −32 D) 32

434) $x^2 - 64$ for $x = -1$ 434) _____

A) −8 B) −64 C) −63 D) 63

435) $8x^2 + 2x$ for $x = 4$ 435) _____

A) 40 B) 72 C) 120 D) 136

436) $-6x^2 - 2x + 6$ for $x = -3$ 436) _____

A) −52 B) −42 C) 30 D) −46

437) $-4x^2 + 5x + 6$ for $x = -1$ 437) _____

A) 5 B) −3 C) 7 D) 15

438) $\dfrac{a - 3}{a - 4}$ for $a = 5$ 438) _____

A) $\dfrac{9}{8}$ B) 2 C) $\dfrac{8}{9}$ D) $\dfrac{1}{2}$

439) $\dfrac{a + 9}{2a - 7}$ for $a = -3$ 439) _____

A) $-\dfrac{13}{6}$ B) $-\dfrac{6}{5}$ C) $-\dfrac{9}{5}$ D) $-\dfrac{6}{13}$

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

A) $-\frac{3}{4}$ B) $\frac{4}{3}$ C) $\frac{4}{5}$ D) $-\frac{4}{3}$

441) $4x + 3y$ for $x = 8, y = 2$ 441) _____

A) 10 B) 38 C) 7 D) 35

442) $6x - 5y$ for $x = 4, y = 2$ 442) _____

A) 19 B) 14 C) 34 D) 22

443) $\frac{2x}{y}$ for $x = 21, y = 7$ 443) _____

A) 14 B) 6 C) 36 D) 28

444) $\frac{x + y}{2}$ for $x = 16, y = 12$ 444) _____

A) 20 B) 22 C) 14 D) 28

445) $x^2 - 4y$ for $x = 8, y = 2$ 445) _____

A) 72 B) 56 C) 8 D) 24

446) $5x^2 + 10y$ for $x = 3, y = 6$ 446) _____

A) 570 B) 210 C) 105 D) 285

447) $a^4 - (-b)^2$ for $a = 4, b = 3$ 447) _____

A) 22 B) 265 C) 247 D) 264

448) $x - y + z$ for $x = 22, y = 10, z = 3$ 448) _____

A) 9 B) 16 C) 35 D) 15

449) $x - 4yz$ for $x = 87, y = 2, z = 5$ 449) _____

A) 47 B) 76 C) 830 D) 395

450) $a \cdot b \div c$ for $a = 18, b = 6, c = 4$ 450) _____

A) 104 B) 432 C) 28 D) 27

451) $a^2 - b \cdot c$ for $a = 9, b = 4, c = 2$ 451) _____

A) 90 B) 73 C) 50 D) 154

452) $\frac{a + b}{c + d}$ for $a = 8, b = 9, c = 9, d = 10$ 452) _____

A) -17 B) 1 C) $-\frac{1}{19}$ D) $\frac{17}{19}$

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453) $\frac{a + b}{c^2 - d}$ for a = 123, b = 7, c = 3, d = 4 453) _____

A) 26 B) 39 C) 24 D) 65

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

454) –7 decreased by 3 times a number 454) _____

A) –7 – 3x B) 3x – 7 C) 3 – 7x D) –7x – 3

455) 5 less than –4 times a number 455) _____

A) 5x – 4 B) –4x – 5 C) 5 – 4x D) –4 – 5x

456) 5 more than 4 times a number 456) _____

A) 9x B) 4x + 5 C) 4(5 + x) D) 5x + 4

Solve the problem.

457) In Country X, teacher pay in 1990 was $18.6 thousand and has increased by approximately $4 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 = 31. 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	4 + 0 + 18.6
1	4 + 1 + 18.6
2	4 + 2 + 18.6
3	4 + 3 + 18.6
4	4 + 4 + 18.6
t	4 + t + 18.6

(ii) 53.6; Teacher pay will be about $53.6 thousand in 2021.

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B) (i)

Numbers of Years and Teacher Pay	
Years Since 1990	Teacher Pay (thousands of dollars)
0	$4 \cdot 0 + 18.6$
1	$4 \cdot 1 + 18.6$
2	$4 \cdot 2 + 18.6$
3	$4 \cdot 3 + 18.6$
4	$4 \cdot 4 + 18.6$
t	$4t + 18.6$

(ii) 142.6; Teacher pay will be about $142.6 thousand in 2021.

C) (i)

Numbers of Years and Teacher Pay	
Years Since 1990	Teacher Pay (thousands of dollars)
0	$-4 \cdot 0 + 18.6$
1	$-4 \cdot 1 + 18.6$
2	$-4 \cdot 2 + 18.6$
3	$-4 \cdot 3 + 18.6$
4	$-4 \cdot 4 + 18.6$
t	$-4t + 18.6$

(ii) –105.4; Teacher pay will be about –$105.4 thousand in 2021.

D) (i)

Numbers of Years and Teacher Pay	
Years Since 1990	Teacher Pay (thousands of dollars)
0	$4 - 0 + 18.6$
1	$4 - 1 + 18.6$
2	$4 - 2 + 18.6$
3	$4 - 3 + 18.6$
4	$4 - 4 + 18.6$
t	$4 - t + 18.6$

(ii) –8.4; Teacher pay will be about –$8.4 thousand in 2021.

458) The population of City A was about 190 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 = 36. 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	$6 \cdot 0 + 190$
1	$6 \cdot 1 + 190$
2	$6 \cdot 2 + 190$
3	$6 \cdot 2 + 190$
4	$6 \cdot 2 + 190$
t	$6t + 190$

(ii) 406; The population of City A will be about 406 thousand in 2043.

B) (i)

Population of City A	
Years Since 2007	Population (thousands)
0	$-6 \cdot 0 + 190$
1	$-6 \cdot 1 + 190$
2	$-6 \cdot 2 + 190$
3	$-6 \cdot 2 + 190$
4	$-6 \cdot 2 + 190$
t	$-6t + 190$

(ii) –26; The population of City A will be about –26 thousand in 2043.

C) (i)

Population of City A	
Years Since 2007	Population (thousands)
0	$6 - 0 + 190$
1	$6 - 1 + 190$
2	$6 - 2 + 190$
3	$6 - 2 + 190$
4	$6 - 2 + 190$
t	$6 - t + 190$

(ii) 148; The population of City A will be about 148 thousand in 2043.

D) (i)

Population of City A	
Years Since 2007	Population (thousands)
0	$-6 + 0 + 190$
1	$-6 + 1 + 190$
2	$-6 + 2 + 190$
3	$-6 + 2 + 190$
4	$-6 + 2 + 190$
t	$-6 + t + 190$

(ii) 220; The population of City A will be about 220 thousand in 2043.

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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 18 yards. 459) _____

A) 54 cubic yards
B) 5832 cubic yards
C) 324 cubic yards
D) 648 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) 309.39 cubic feet
B) 3053.64 cubic feet
C) 1526.82 cubic feet
D) 9160.91 cubic feet

461) The normal gasoline mileage of a car is 42 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) 47.0 mpg
B) 5.0 mpg
C) 50 mpg
D) 42 mpg

462) The regular price of a bathing suit is $28. The price is decreased 20% for a sale in July. What is the sale price of the suit? 462) _____

A) $22.40
B) $21.40
C) $23.40
D) $5.60

463) A computer printer costs $910. The price is increased by $3\frac{1}{2}$% for sales tax. What is the total price of the printer with tax? 463) _____

A) $950.95
B) $932.75
C) $1228.50
D) $941.85

464) Brand X copier has improved its copier so that it produces 13% more copies than its old model. If the old model ran 395 copies per hour, how many copies would the new model run? Round your answer to the nearest whole number. 464) _____

A) 410 copies per hour
B) 446 copies per hour
C) 211 copies per hour
D) 431 copies per hour

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1) D
2) A
3) C
4) A
5) A
6) B
7) B
8) D
9) C
10) D
11) B
12) D
13) A
14) D
15) B
16) B
17) C
18) A
19) D
20) C
21) D
22) B
23) A
24) D
25) C
26) C
27) A
28) C
29) C
30) D
31) A
32) B
33) D
34) B
35) C
36) D
37) A
38) A
39) B
40) A
41) B
42) A
43) B
44) C
45) D
46) D
47) B
48) A
49) A
50) D

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51) C
52) D
53) D
54) A
55) C
56) B
57) B
58) B
59) D
60) B
61) A
62) C
63) A
64) D
65) B
66) C
67) C
68) A
69) A
70) A
71) C
72) B
73) B
74) A
75) A
76) C
77) B
78) B
79) A
80) B
81) D
82) D
83) A
84) B
85) A
86) A
87) B
88) A
89) D
90) B
91) D
92) C
93) C
94) C
95) B
96) C
97) A
98) B
99) D
100) B

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101) D
102) C
103) C
104) A
105) C
106) C
107) B
108) A
109) D
110) C
111) D
112) A
113) D
114) D
115) B
116) B
117) C
118) A
119) C
120) A
121) A
122) A
123) A
124) D
125) A
126) A
127) B
128) C
129) D
130) D
131) A
132) B
133) C
134) A
135) C
136) A
137) D
138) D
139) A
140) D
141) C
142) C
143) A
144) A
145) A
146) B
147) A
148) A
149) C
150) C

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151) B
152) A
153) A
154) A
155) C
156) B
157) D
158) B
159) A
160) C
161) A
162) D
163) A
164) A
165) A
166) C
167) D
168) C
169) D
170) D
171) B
172) A
173) D
174) D
175) D
176) C
177) C
178) D
179) B
180) A
181) A
182) D
183) D
184) C
185) C
186) C
187) C
188) B
189) C
190) D
191) A
192) D
193) A
194) C
195) B
196) B
197) D
198) C
199) D
200) D

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201) C
202) B
203) A
204) C
205) C
206) D
207) B
208) C
209) A
210) D
211) C
212) B
213) A
214) D
215) D
216) D
217) C
218) C
219) B
220) B
221) A
222) D
223) D
224) D
225) C
226) C
227) A
228) A
229) B
230) B
231) D
232) B
233) C
234) B
235) D
236) B
237) C
238) B
239) C
240) D
241) D
242) A
243) C
244) B
245) B
246) C
247) B
248) D
249) D
250) B

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251) C
252) A
253) D
254) B
255) B
256) D
257) B
258) C
259) A
260) D
261) A
262) D
263) B
264) B
265) A
266) B
267) D
268) B
269) B
270) D
271) D
272) B
273) D
274) C
275) D
276) A
277) B
278) A
279) D
280) C
281) B
282) B
283) D
284) A
285) D
286) D
287) C
288) D
289) D
290) B
291) A
292) D
293) A
294) D
295) A
296) B
297) D
298) A
299) B
300) C

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301) C
302) D
303) A
304) D
305) D
306) C
307) A
308) C
309) C
310) D
311) D
312) B
313) C
314) A
315) D
316) B
317) C
318) D
319) D
320) C
321) D
322) D
323) A
324) D
325) C
326) C
327) A
328) C
329) B
330) C
331) D
332) D
333) B
334) A
335) D
336) B
337) C
338) D
339) D
340) D
341) A
342) D
343) A
344) B
345) C
346) B
347) C
348) D
349) B
350) B

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351) B
352) B
353) B
354) B
355) D
356) B
357) B
358) C
359) D
360) D
361) A
362) A
363) A
364) D
365) B
366) A
367) C
368) C
369) A
370) C
371) C
372) B
373) B
374) D
375) A
376) D
377) B
378) A
379) D
380) C
381) A
382) C
383) C
384) C
385) D
386) D
387) B
388) B
389) A
390) A
391) B
392) D
393) B
394) D
395) C
396) C
397) A
398) B
399) D
400) A

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401) A
402) C
403) D
404) C
405) A
406) C
407) C
408) C
409) A
410) B
411) D
412) D
413) C
414) C
415) A
416) B
417) C
418) D
419) D
420) D
421) C
422) C
423) B
424) D
425) C
426) B
427) D
428) C
429) A
430) C
431) A
432) C
433) B
434) C
435) D
436) B
437) B
438) B
439) D
440) D
441) B
442) B
443) B
444) C
445) B
446) C
447) C
448) D
449) A
450) D

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451) B
452) D
453) A
454) A
455) B
456) B
457) B
458) B
459) B
460) B
461) A
462) A
463) D
464) B

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