

Name _____

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

Find the value of the exponential expression.

1) 2^3

A) 6

B) 4

C) 5

D) 8

Answer: D

2) 21^2

A) 441

B) 23

C) 882

D) 42

Answer: A

3) 2^5

A) 4

B) 32

C) 25

D) 10

Answer: B

4) $\left(\frac{4}{7}\right)^3$

A) $3\frac{4}{7}$ B) $\frac{64}{7}$ C) $\frac{343}{64}$ D) $\frac{64}{343}$

Answer: D

5) $(0.05)^3$

A) 0.15

B) 0.000125

C) 0.125

D) 0.01666667

Answer: B

Simplify.

6) $11 \cdot 6 + 10 \cdot 19$

A) 1444

B) 3344

C) 2156

D) 256

Answer: D

7) $2.7 \cdot 17.6 + 12.1 \cdot 19.1$

A) 1531.6

B) 671.5

C) 1138.7

D) 278.63

Answer: D

8) $240 \div 5 - 2$

A) 46

B) 233

C) 80

D) 237

Answer: A

9) $6^2 + 5^2$

A) 61

B) 44

C) 22

D) 121

Answer: A

10) $24 + 26 \cdot 28$

A) 78

B) 752

C) 652

D) 1400

Answer: B

11) $2 \cdot 6 - 9$

A) 21

B) 108

C) 6

D) 3

Answer: D

12) $6 \cdot 7 - 3 \cdot 9$

A) 351

B) 15

C) 1134

D) 216

Answer: B

13) $73 - 6 \cdot 2 \cdot 3$

A) 62

B) 402

C) 183

D) 37

Answer: D

14) $6^3 \div 12 - 10$

A) 8

B) 27

C) 108

D) 214

Answer: A

15) $\frac{7}{4} \cdot \frac{1}{3} + \frac{4}{5} \cdot \frac{1}{2}$

A) $\frac{13}{15}$

B) $\frac{59}{44}$

C) $\frac{59}{60}$

D) $\frac{59}{36}$

Answer: C

Find the value of the expression.

16) $5[4 + 9(9^2)]$

A) 36,125

B) 3665

C) 32,825

D) 180,625

Answer: B

17) $(8 + 7)[4 + (3 + 2)]$

A) 35

B) 135

C) 504

D) 560

Answer: B

18) $\frac{8(8 + 2) + 8 \cdot 3}{8(3 - 1)}$

A) $\frac{38}{23}$

B) $\frac{16}{23}$

C) $\frac{13}{2}$

D) $\frac{19}{8}$

Answer: C

19) $\frac{6(6 - 2) + 6 \cdot 3}{6(8 - 6)}$

A) $\frac{2}{7}$

B) $\frac{7}{2}$

C) $\frac{3}{7}$

D) $\frac{3}{2}$

Answer: B

20) $2[6^2 + 6(6 + 6)]$

A) 216

B) 156

C) 84

D) 1008

Answer: A

$$21) \frac{2(15 - 2^2)}{3 \cdot 6 \cdot 12}$$

$$A) \frac{108}{11}$$

$$B) \frac{11}{9}$$

$$C) \frac{14}{9}$$

$$D) \frac{11}{108}$$

Answer: D

$$22) \left(\frac{5}{7} + \frac{4}{7} \right) \cdot \frac{7}{12}$$

$$A) \frac{21}{4}$$

$$B) \frac{3}{4}$$

$$C) \frac{4}{21}$$

$$D) \frac{8}{13}$$

Answer: B

$$23) \frac{5(2 + 1) - 6(1 + 1)}{5(4 - 2) - 2^3}$$

$$A) \frac{9}{2}$$

$$B) \frac{1}{2}$$

$$C) \frac{3}{2}$$

$$D) \frac{3}{8}$$

Answer: C

Determine whether the statement is true or false.

$$24) 17 < 13$$

A) False

B) True

Answer: A

$$25) 15 > 10$$

A) False

B) True

Answer: B

$$26) 17 < 16 - 9$$

A) False

B) True

Answer: A

$$27) \frac{6 \cdot (7 + 8) + 6 \cdot 2}{6 \cdot (6 - 1)} < 10$$

A) True

B) False

Answer: A

$$28) 7^2 \leq 8^2 - 2^2$$

A) False

B) True

Answer: B

$$29) (6 + 4)[3 + (7 + 3)] < 170$$

A) False

B) True

Answer: B

$$30) 9 \cdot 2 - 7 \cdot 8 \leq 0$$

A) False

B) True

Answer: B

31) $7[4 + (4 - 3)] < 29$

A) False

B) True

Answer: A

32) $\frac{7(5 + 2) + 7 \cdot 6}{4(3 + 9)} \leq 16$

A) False

B) True

Answer: B

33) $\frac{2(9 - 2) + 3(9 - 1)}{6(7 - 3) - 2(8 - 1)} \geq 2$

A) True

B) False

Answer: A

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Write the statement in words and decide whether it is true or false.

34) $1 \leq 6$

Answer: One is less than or equal to six. True

35) $4 \neq 5$

Answer: Four is not equal to five. True

36) $6 \geq 4$

Answer: Six is greater than or equal to four. True

37) $12 > 9 + 2$

Answer: Twelve is greater than nine plus two. True

38) $12 \leq 9 + 4$

Answer: Twelve is less than or equal to nine plus four. True

39) $\frac{13}{8} \neq \frac{5}{4}$

Answer: Thirteen-eighths is not equal to five-fourths. True.

40) $\frac{2}{5} \neq \frac{3}{10}$

Answer: Two-fifths is not equal to three-tenths. True.

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

Write the word statement in symbols.

41) Nine is greater than two plus six.

A) $9 > 2 + 6$

B) $9 < 2 + 6$

C) $2 + 6 > 9$

D) $9 + 2 > 6$

Answer: A

42) Two is less than or equal to six.

A) $2 \geq 6$

B) $2 \leq 6$

C) $2 > 6$

D) $2 < 6$

Answer: B

43) Seven is not equal to four.

A) $7 > 4$

B) $7 < 4$

C) $7 \geq 4$

D) $7 \neq 4$

Answer: D

44) Sixteen is less than or equal to nine plus eight.

A) $9 + 8 \leq 16$

B) $16 + 9 \geq 8$

C) $16 \leq 9 + 8$

D) $16 < 9 + 8$

Answer: C

45) Five is equal to seven minus two.

A) $7 = 5 - 2$

B) $7 < 5 + 2$

C) $5 = 7 - 2$

D) $5 - 7 < 2$

Answer: C

Rewrite the statement so the inequality symbol points in the opposite direction.

46) $17 < 40$

A) $17 > 40$

B) $40 \geq 17$

C) $40 < 17$

D) $40 > 17$

Answer: D

47) $42 > 12$

A) $42 \geq 12$

B) $12 < 42$

C) $42 < 12$

D) $12 > 42$

Answer: B

48) $46 \geq 33$

A) $33 \geq 46$

B) $46 \leq 33$

C) $46 > 33$

D) $33 \leq 46$

Answer: D

49) $4 \leq 49$

A) $49 \geq 4$

B) $49 \leq 4$

C) $49 > 4$

D) $4 \geq 49$

Answer: A

50) $8.43 \geq 6.93$

A) $6.93 \geq 8.43$

B) $8.43 < 6.93$

C) $6.93 \leq 8.43$

D) $8.43 \leq 6.93$

Answer: C

51) $5.89 < 5.97$

A) $5.89 > 5.97$

B) $5.97 > 5.89$

C) $5.89 \geq 5.97$

D) $5.97 \leq 5.89$

Answer: B

Provide an appropriate response.

- 52) One way to measure a person's cardiofitness is to calculate how many METs, or metabolic units, he or she can reach at peak exertion. One MET is the amount of energy used when sitting quietly. To calculate ideal METs, we can use the following expression:

$$14.7 - \text{age} \cdot 0.13 \quad \text{For women}$$

$$\text{or } 14.7 - \text{age} \cdot 0.11 \quad \text{For men}$$

Researchers recommend that a person reach approximately 85% of his or her MET when exercising. Calculate 85% of the ideal MET for a 65-yr-old woman. Then refer to the following table. What activity can the woman do that is approximately this value?

Activity	METs	Activity	METS
Golfing (with cart)	2.5	Skiing (water or downhill)	6.8
Walking (3 mph)	3.3	Swimming	7.0
Mowing lawn (power mower)	4.5	Walking (5 mph)	8.0
Ballroom or square dancing	5.5	Jogging	10.2
Cycling	5.7	Skipping rope	12.0

A) 5.313; Walking

B) 5.313; Ballroom or square dancing

C) 6.25; Swimming

D) 6.25; Mowing lawn

Answer: B

- 53) One way to measure a person's cardiofitness is to calculate how many METs, or metabolic units, he or she can reach at peak exertion. One MET is the amount of energy used when sitting quietly. To calculate ideal METs, we can use the following expression:

$$14.7 - \text{age} \cdot 0.13 \quad \text{For women}$$

$$\text{or } 14.7 - \text{age} \cdot 0.11 \quad \text{For men}$$

Researchers recommend that a person reach approximately 85% of his or her MET when exercising. Calculate 85% of the ideal MET for a 60-yr-old woman. Then refer to the following table. What activity can the woman do that is approximately this value?

Activity	METs	Activity	METS
Golfing (with cart)	2.5	Skiing (water or downhill)	6.8
Walking (3 mph)	3.3	Swimming	7.0
Mowing lawn (power mower)	4.5	Walking (5 mph)	8.0
Ballroom or square dancing	5.5	Jogging	10.2
Cycling	5.7	Skipping rope	12.0

A) 8.1; Skiing

B) 6.885; Skiing

C) 6.885; Cycling

D) 8.1; Swimming

Answer: B

54) The table shows the number of pupils per teacher in selected counties in a certain state.

County	Pupils per Teacher
Alaska	16.7
Branson	14.7
Cumberland	20.5
Dixson	12.5
Hendricks	12.3
Kendall	17.8
Putnum	13.9

Which counties have a figure greater than 14.7?

A) Addison, Cumberland, Kendall

B) Addison, Branson, Cumberland

C) Addison, Branson, Cumberland, Kendall

D) Addison, Cumberland, Dixson, Kendall

Answer: A

55) The table shows the number of pupils per teacher in selected counties in a certain state.

County	Pupils per Teacher
Addison	16.7
Branson	14.7
Cumberland	20.5
Dixson	12.5
Hendricks	12.3
Kendall	17.8
Putnum	13.9

Which counties have a figure greater than 12.5?

A) Hendricks

B) Dixson, Hendricks

C) Addison, Branson, Cumberland, Dixson, Kendall, Putnum

D) Addison, Branson, Cumberland, Kendall, Putnum

Answer: D

56) The table shows the number of pupils per teacher in selected counties in a certain state.

County	Pupils per Teacher
Addison	16.7
Branson	14.7
Cumberland	20.5
Dixson	12.5
Hendricks	12.3
Kendall	17.8
Putnum	13.9

Which counties have a figure greater than 16.7?

A) Addison, Cumberland, Kendall

B) Addison, Branson, Dixson, Hendricks, Putnum

C) Kendall

D) Cumberland, Kendall

Answer: D

57) The table shows the number of pupils per teacher in selected counties in a certain state.

County	Pupils per Teacher
Addison	16.7
Branson	14.7
Cumberland	20.5
Dixson	12.5
Hendricks	12.3
Kendall	17.8
Putnum	13.9

Which counties have a figure that is at most 14.7?

A) Addison, Branson, Cumberland, Kendall

B) Branson, Dixson, Hendricks, Putnum

C) Addison, Cumberland, Kendall

D) Dixson, Hendricks, Putnum

Answer: B

58) The table shows the number of pupils per teacher in selected counties in a certain state.

County	Pupils per Teacher
Addison	16.7
Branson	14.7
Cumberland	20.5
Dixson	12.5
Hendricks	12.3
Kendall	17.8
Putnum	13.9

Which counties have a figure that is at most 12.5?

A) Dixson, Hendricks

B) Addison, Branson, Cumberland, Dixson, Kendall, Putnum

C) Hendricks

D) Addison, Branson, Cumberland, Kendall, Putnum

Answer: A

59) The table shows the number of pupils per teacher in selected counties in a certain state.

County	Pupils per Teacher
Addison	16.7
Branson	14.7
Cumberland	20.5
Dixson	12.5
Hendricks	12.3
Kendall	17.8
Putnum	13.9

Which counties have a figure that is at most 16.7?

A) Branson, Dixson, Hendricks, Putnum

B) Cumberland, Kendall

C) Addison, Branson, Dixson, Hendricks, Putnum

D) Addison, Cumberland, Kendall

Answer: C

60) The table shows the number of pupils per teacher in selected counties in a certain state.

County	Pupils per Teacher
Addison	16.7
Branson	14.7
Cumberland	20.5
Dixson	12.5
Hendricks	12.3
Kendall	17.8
Putnum	13.9

For which counties are the values not less than 14.7?

- A) Addison, Cumberland, Kendall
B) Addison, Branson, Cumberland, Kendall
C) Branson, Dixson, Hendricks, Putnum
D) Dixson, Hendricks, Putnum

Answer: B

61) The table shows the number of pupils per teacher in selected counties in a certain state.

County	Pupils per Teacher
Addison	16.7
Branson	14.7
Cumberland	20.5
Dixson	12.5
Hendricks	12.3
Kendall	17.8
Putnum	13.9

For which counties are the values not less than 12.5?

- A) Hendricks
B) Dixson, Hendricks
C) Addison, Branson, Cumberland, Kendall, Putnum
D) Addison, Branson, Cumberland, Dixson, Kendall, Putnum

Answer: D

62) The table shows the number of pupils per teacher in selected counties in a certain state.

County	Pupils per Teacher
Addison	16.7
Branson	14.7
Cumberland	20.5
Dixson	12.5
Hendricks	12.3
Kendall	17.8
Putnum	13.9

For which counties are the values not less than 16.7?

- A) Cumberland, Kendall
B) Branson, Dixson, Hendricks, Putnum
C) Addison, Branson, Dixson, Hendricks, Putnum
D) Addison, Cumberland, Kendall

Answer: D

Answer the question as instructed.

63) 8^4 means?

A) $8 \cdot 4$

B) $8 \cdot 8 \cdot 8 \cdot 8$

C) $8 \div 4$

D) $8 \cdot 8 \cdot 8 \cdot 8 \cdot 8$

Answer: B

64) Which of the following is the correct way to evaluate the expression $6 + 6 \cdot 4$?

A) $6 + 6 \cdot 4 = 24 + 24 = 48$

B) $6 + 6 \cdot 4 = 24 + 6 = 30$

C) $6 + 6 \cdot 4 = 12 \cdot 4 = 48$

D) $6 + 6 \cdot 4 = 6 + 24 = 30$

Answer: D

65) True or false? In an inequality using $>$ or $<$, the inequality symbol should point toward the smaller number for the inequality to be true.

A) true

B) false

Answer: A

66) Which of the following statements is false?

A) $13 \leq 13$

B) $13 \geq 13$

C) $13 < 13$

D) $13 = 13$

Answer: C

67) Which of the following statements is true?

A) $6 > 6$

B) $12 < 6$

C) $6 \neq 6$

D) $12 > 6$

Answer: D

68) If Tony is heavier than Steve, then Tony's weight is _____ Steve's weight.

A) less than or equal to

B) less than

C) greater than

D) greater than or equal to

Answer: C

69) Which of the following is not a mathematical sentence?

A) $4 \neq 11$

B) $4 \cdot 7 = 28$

C) $4 < 7$

D) $4 \cdot 7 \cdot 28$

Answer: D

70) Evaluate 1^8 .

A) $\frac{1}{8}$

B) 1

C) 8

D) 8^1

Answer: B

71) Using the rules for the order of operations, what should be done first when evaluating the expression $(7 + 10^2)^4$?

A) Evaluate 7^4

B) Evaluate 10^2

C) Evaluate 10^4

D) Add $7 + 10$

Answer: B

Find the numerical value of the expression for a) $x = 4$ and b) $x = 18$.

72) $x + 9$

A) a) 5 b) 9

B) a) 36 b) 162

C) a) 13 b) 27

D) a) 27 b) 13

Answer: C

73) $x - 3$

A) a) 1 b) 15

B) a) 15 b) 1

C) a) 12 b) 54

D) a) 7 b) 21

Answer: A

74) $7x$

A) a) 28 b) 126

B) a) 126 b) 28

C) a) 25 b) 11

D) a) 11 b) 25

Answer: A

75) $\frac{x+6}{7}$

A) a) $\frac{10}{7}$ b) $\frac{24}{7}$

B) a) $\frac{24}{7}$ b) $\frac{108}{7}$

C) a) $\frac{24}{7}$ b) $\frac{10}{7}$

D) a) $\frac{7}{10}$ b) $\frac{7}{24}$

Answer: A

76) $\frac{3x-3}{6x}$

A) a) $\frac{17}{36}$ b) $\frac{3}{8}$

B) a) $\frac{3}{8}$ b) $\frac{17}{36}$

C) a) $\frac{5}{36}$ b) $\frac{19}{36}$

D) a) $\frac{1}{12}$ b) $\frac{17}{36}$

Answer: B

77) $\frac{x+5}{x-2}$

A) a) $\frac{13}{20}$ b) $\frac{1}{6}$

B) a) $\frac{23}{16}$ b) $\frac{9}{2}$

C) a) $\frac{9}{2}$ b) $\frac{23}{16}$

D) a) $\frac{1}{6}$ b) $\frac{13}{20}$

Answer: C

78) $3x^2 + 8x$

A) a) 16 b) 828

B) a) 44 b) 198

C) a) 56 b) 252

D) a) 80 b) 1116

Answer: D

79) $0.59x^2$

A) a) 4.72 b) 21.24

B) a) 9.44 b) 191.16

C) a) 3.54 b) 15.34

D) a) 4.72 b) 15.34

Answer: B

Evaluate the expression for the given values. If necessary, round to the nearest tenth.

80) $3x + 7y + 8$; $x = 2$, $y = 9$

A) 77

B) 21

C) 49

D) 74

Answer: A

81) $\frac{4x}{y} + y^2$ $x = 3$, $y = 7$

A) $\frac{61}{7}$

B) $\frac{355}{7}$

C) $\frac{26}{7}$

D) $\frac{55}{3}$

Answer: B

82) $\frac{15x - 12y}{7}$ $x = 9$, $y = 2$

A) $\frac{159}{7}$

B) $\frac{78}{7}$

C) $\frac{111}{7}$

D) $\frac{123}{7}$

Answer: C

83) $\frac{x+y}{13x-4}$ $x = 9, y = 3$

A) $\frac{9}{113}$

B) $\frac{12}{113}$

C) $\frac{12}{43}$

D) $\frac{4}{39}$

Answer: B

84) $\frac{4x+15y}{2}$ $x = 10, y = 8$

A) 80

B) 40

C) 160

D) 91

Answer: A

85) $\frac{15x-8y}{x+9}$ $x = 7, y = 4$

A) $\frac{73}{13}$

B) $\frac{73}{16}$

C) $\frac{4}{13}$

D) $\frac{1}{4}$

Answer: B

86) $(x+4y)^2$ $x = 2, y = 2$

A) 36

B) 20

C) 100

D) 10

Answer: C

87) $\frac{x(y+9)}{7(x-y)}$ $x = 7, y = 5$

A) 7

B) 5

C) 2

D) 1

Answer: A

88) $6x^2 + 3y$ $x = 10, y = 5$

A) 3090

B) 3615

C) 615

D) 180

Answer: C

89) $0.819x^2 + 0.952y^2$ $x = 6, y = 2$

A) 27.8

B) 37.5

C) 121.1

D) 33.3

Answer: D

State the phrase as a mathematical expression. Use x to represent the variable.

90) Two times a number

A) $\frac{2}{x}$

B) $2 - x$

C) $2x$

D) $2 + x$

Answer: C

91) A number increased by seven

A) $x + 7$

B) $7x$

C) $x - 7$

D) 7

Answer: A

92) A number multiplied by three hundred fifty-three

A) $353 - x$

B) $353 + x$

C) $353x$

D) $\frac{353}{x}$

Answer: C

93) A number minus seven hundred five

A) 705

B) $705x$

C) $x + 705$

D) $x - 705$

Answer: D

94) The difference between twelve times a number and twelve

A) $12 - 12x$

B) $12 - x + 12$

C) $12 + 12x$

D) $12x - 12$

Answer: D

95) The quotient of a number and seven

A) $7 + x$

B) $7 - x$

C) $7x$

D) $\frac{x}{7}$

Answer: D

96) Two divided by a number

A) $2x$

B) $\frac{2}{x}$

C) $2 + x$

D) $2 - x$

Answer: B

97) The product of seven and four more than a number

A) $7 + 4 \cdot x$

B) $(7 + 4)x$

C) $7(x + 4)$

D) $7 \cdot 4 + x$

Answer: C

98) 173 divided by a number

A) $173 - x$

B) $173 + x$

C) $\frac{173}{x}$

D) $173x$

Answer: C

99) Four times a number, added to 18

A) $4(x + 18)$

B) $4x + 18$

C) $4 \cdot 18 + x$

D) $4x$

Answer: B

Decide if the given number is a solution to the given equation.

100) $p + 8 = 21$; 13

A) Yes

B) No

Answer: A

101) $p - 3 = 1$; 4

A) Yes

B) No

Answer: A

102) $6m + 5 = 31$; 4

A) No

B) Yes

Answer: A

103) $5y + 8(y - 6) = 43$; 7

A) No

B) Yes

Answer: B

104) $6p + 4p - 2 = 48$; 5

A) Yes

B) No

Answer: A

105) $7x^2 + 5 = 47$; 3

A) Yes

B) No

Answer: B

106) $\frac{x+4}{5-x} = \frac{7}{6}$; $\frac{11}{13}$

A) Yes

B) No

Answer: A

107) $\frac{x+10}{x-8} = \frac{3}{5}$; - 37

A) No

B) Yes

Answer: B

Change the word statement to an equation. Use x as the variable.

108) A number minus 5 equals 5.

A) $x = 5 - 5$

B) $x - 5 = 5$

C) $5 - x = 5$

Answer: B

109) 5 times a number equals 10 less than 6 times the number.

A) $5x = 10 - 6$

B) $5x = 6x - 10$

C) $5x = 10 - 6x$

Answer: B

110) Twice a number less 3 equals 5.

A) $3 - 2x = 5$

B) $2(x - 3) = 5$

C) $2x - 3 = 5$

Answer: C

111) The product of twice a number and 11 is 176.

A) $22x = 176x$

B) $22x = 176$

C) $2x + 11 = 176$

Answer: C

112) $-\frac{13}{7}$ of a number plus 18 equals 5.

A) $-\frac{13}{7}(x+18) = 5$

B) $-\frac{13}{7}x = 18 + 5$

C) $-\frac{13}{7}x + 18 = 5$

Answer: C

113) 12 divided by a number equals $\frac{1}{3}$ times that number."

A) $\frac{x}{12} = \frac{x}{3}$

B) $\frac{12}{x} = 3x$

C) $\frac{12}{x} = \frac{1}{3}x$

Answer: C

114) When 2 times a number is subtracted from 7 times the number, the result is 35.

A) $7x - 2x = 35$

B) $2x + 7x = 35$

C) $2(x - 7) = 35x$

D) $2x(7 - x) = 35$

Answer: A

115) The sum of two-thirds a number and 93 is 48.

A) $\frac{2}{3}x - 93 = 48$

B) $\frac{2}{3}x \cdot 93 = 48$

C) $\frac{2}{3}x + 48 = 93$

D) $\frac{2}{3}x + 93 = 48$

Answer: D

Write this word statement as an equation. Use x as the variable, and find all solutions from the set $\{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$.

116) The sum of a number and 1 is 9.

A) $x + 9 = 1$; 8

B) $x = 1 + 9$; 10

C) $x + 1 = 9$; 8

D) $x + 1 = 9$; 9

Answer: C

117) A number minus 7 equals 3.

A) $7 = 3 - x$; 4

B) $x - 7 = 3$; 10

C) $7 = 3 - x$; 10

D) $7 - x = 3$; 4

Answer: B

118) The product of a number and 2 is 6.

A) $2x = 6$; 3

B) No Solution

C) $6x = 2$; 3

D) $2x = 6$; 2

Answer: A

119) 32 divided by a number equals $\frac{1}{2}$ times that number.

A) $\frac{32}{x} = \frac{1}{2}x$; 8

B) $\frac{x}{32} = \frac{1}{2}x$; No solution

C) $\frac{x}{32} = 2x$; 8

D) $\frac{32}{x} = \frac{1}{2}x$; 32

Answer: A

Decide whether the problem is an equation or an expression.

120) $4(9x + 7) = 6(8x - 4)$

A) Expression

B) Equation

Answer: B

121) $4(4x + 6) - 2(8x - 4)$

A) Equation

B) Expression

Answer: B

122) $\frac{8x + 9}{3} = \frac{8x}{9} - 8$

A) Equation

B) Expression

Answer: A

123) $\frac{7x - 9}{x + 9} - \frac{x}{3} + 5$

A) Expression

B) Equation

Answer: A

124) $2x + 6 = \frac{9x + 4}{7}$

A) Expression

B) Equation

Answer: B

125) $3(4 - x) + \frac{3x + 8}{9}$

A) Equation

B) Expression

Answer: B

126) $x + y = 4$

A) Equation

B) Expression

Answer: A

127) $x + y - 8$

A) Equation

B) Expression

Answer: B

Solve the problem.

128) The life expectancy of inhabitants of a country can be approximated by the equation $y = 0.305x - 385$, where x is a year between 1940 and 2006 and y is age in years. Use this mathematical model to approximate life expectancy (to the nearest tenth of a year) in 1973.

A) 301.8 yr

B) 597.9 yr

C) 563.3 yr

D) 216.8 yr

Answer: D

Answer the question.

129) Which phrase correctly translates the expression $8 - x$?

A) x less than 8

B) x minus 8

C) 8 subtracted from x

D) x take away 8

Answer: A

130) Which one of the following is the correct method for evaluating the expression $3x^2 - 5$ for $x = 7$?

A) $3 \cdot 7^2 - 5 = 21^2 - 5 = 441 - 5 = 436$

B) $3 \cdot 7^2 - 5 = 3 \cdot 2^2 = 3 \cdot 4 = 12$

C) $3 \cdot 7^2 - 5 = (21 - 5)^2 = 16 = 256$

D) $3 \cdot 7^2 - 5 = 3 \cdot 49 - 5 = 147 - 5 = 142$

Answer: D

131) According to the rules for order of operations, the first steps in evaluating the expression $43 - 4x^3$ for $x = 2$ are to substitute 2 for x and then _____.

A) subtract 43 from 4

B) find the cube of 2

C) subtract 4 from 43

D) multiply 4 by 2

Answer: B

132) What value for x makes the expression $8 + 2x$ equal to 16?

A) 7

B) 3

C) 5

D) 4

Answer: D

133) What value for x makes the expression $28 - x$ equal to 10?

A) 28

B) 38

C) 18

D) 19

Answer: C

134) Which pair of values of x and y makes $6x + y$ equal 12?

A) $x = 3$ and $y = 6$

B) $x = 0$ and $y = 2$

C) $x = 6$ and $y = 3$

D) $x = 2$ and $y = 0$

Answer: D

135) Which pair of values of x and y makes $x - 2y$ equal 1?

A) $x = 2$ and $y = 5$

B) $x = 7$ and $y = 4$

C) $x = 5$ and $y = 2$

D) $x = 4$ and $y = 7$

Answer: C

136) In the equation $4x + y = 18$, the value of x is 2. What is the corresponding value of y ?

A) $y = 22$

B) $y = 10$

C) $y = 5$

D) $y = 26$

Answer: B

Use an integer or rational number to express the number representing change.

137) The stock market lost 48 points on Monday.

A) -48

B) 48

Answer: A

138) During one year, 29 employees started work at Newline Manufacturing Company.

A) -29

B) 29

Answer: B

139) A football team lost 24 yards on one play.

A) 24

B) -24

Answer: B

140) In one state, the highest point is 5793 feet above sea level.

A) -5793

B) 5793

Answer: B

141) One country exported \$79,100,000 more than it imported, giving it a positive trade balance.

A) -79,100,000

B) 79,100,000

Answer: B

142) Sales at Andrea's Formal Wear Shop were \$4404 more this week than the sales last week.

A) 4404

B) -4404

Answer: A

143) Mr. Voss decreased his speed by 8 miles per hour.

A) 8

B) -8

Answer: B

144) On a sunny day, the water temperature in the swimming pool rises 8 degrees.

A) -8

B) 8

Answer: B

145) This year corn production increased 25,000 pounds from last year on Steve's farm.

A) 25,000

B) -25,000

Answer: A

146) Sales in Jeff's Toys Shop decline 5.7% from last month to this month.

A) 5.7

B) -5.7

Answer: B

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Give a number that satisfies the given condition.

147) An integer greater than -4.3 and less than -3.3

Answer: -4

148) A whole number greater than 3.5

Answer: One example is 4. There are others.

149) A whole number less than 3.5

Answer: One example is 3. There are others.

150) A number between -8 and 8 that is a negative real number but not an integer

Answer: One example is -4.513. There are others.

151) A number between -10 and 10 that is a real number but not not an integer

Answer: One example is $\sqrt{5}$. There are others.

152) A number between -6 and 6 that is a rational number but not an integer

Answer: One example is $-\frac{3}{7}$. There are others.

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

Tell whether the statement is true or false.

153) Every rational number is an integer.

A) True

B) False

Answer: B

154) Every irrational number is an integer.

A) True

B) False

Answer: B

155) Every whole number is a real number.

A) True

B) False

Answer: A

156) Some rational numbers are irrational.

A) True

B) False

Answer: B

157) Some rational numbers are integers.

A) True

B) False

Answer: A

- 158) Every integer is an irrational number.
 A) True B) False
 Answer: B
- 159) The absolute value of any number is positive.
 A) True B) False
 Answer: B
- 160) Some real numbers are integers.
 A) True B) False
 Answer: A
- 161) The absolute value of any nonzero number is positive.
 A) True B) False
 Answer: A
- 162) The absolute value of any nonzero number is an irrational number.
 A) True B) False
 Answer: B

List the numbers from the set that are of the type indicated.

- 163) $\{0, \sqrt{6}, -9, \frac{2}{3}, -1\frac{1}{2}, 4.5, 3\}$
 Integers
 A) 0, -9, 3 B) 12, -9 C) 12 D) $12, \sqrt{6}$
 Answer: A
- 164) $\{9, \sqrt{6}, -19, 0, \frac{2}{5}, -2\frac{1}{2}, 9.2\}$
 Whole numbers
 A) 9, 0 B) 9, -19 C) 9, -19, 0 D) 9
 Answer: A
- 165) $\{\sqrt{7}, -13, 0, \frac{3}{7}, -2\frac{1}{3}, 7.2, 5\}$
 Natural numbers
 A) 0 B) 5 C) 0, 5 D) -13, 0
 Answer: B
- 166) $\{15, \sqrt{7}, -3, 0\}$
 Real numbers
 A) $15, \sqrt{7}, -3, 0$ B) 15, -3, 0 C) 15 D) 15, 0
 Answer: A
- 167) $B = \{10, \sqrt{8}, -2, 0, 0.11\}$
 Rational numbers
 A) 10, 0 B) 10, -2, 0, 0.11 C) $\sqrt{8}$ D) $\sqrt{8}, 0.11$
 Answer: B

168) $\{11, \sqrt{6}, -22, 0, 0.42\}$

Irrational numbers

A) $\sqrt{6}, 0.42$

B) $\sqrt{6}, 0, 0.42$

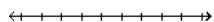
C) $\sqrt{6}$

D) $\sqrt{6}, -22$

Answer: C

Graph the numbers on a number line.

169) $-3, -1, 1, 3$

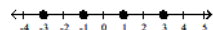


A)



C)

Answer: B

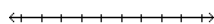


B)



D)

170) $-8, -6, -4, -2$

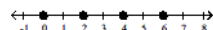


A)



C)

Answer: D

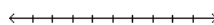


B)



D)

171) $-1\frac{2}{3}, 1, 3, 5\frac{2}{3}$



A)

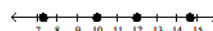


C)

Answer: A

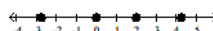


B)

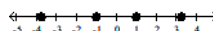


D)

172) $-3\frac{3}{4}, -1, 1, 3\frac{1}{4}$

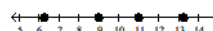


A)

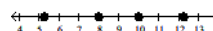


C)

Answer: C

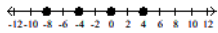
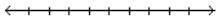


B)



D)

173) $-3\frac{7}{8}, -\frac{7}{4}, 0, \frac{5}{3}$

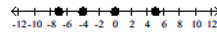


A)

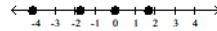


C)

Answer: C



B)



D)

Find the opposite (additive inverse) of the number.

174) 28

A) $\frac{1}{28}$

B) 28

C) 0

D) -28

Answer: D

175) -20

A) $-\frac{1}{20}$

B) -20

C) 20

D) 0

Answer: C

Simplify by finding the absolute value.

176) $|-10|$

A) 20

B) 10

C) -10

D) 0

Answer: B

177) $|-24|$

A) -24

B) 0

C) 48

D) 24

Answer: D

178) $|-17|$

A) 0

B) 17

C) -17

D) 34

Answer: B

179) $-|-6|$

A) 6

B) 12

C) -6

D) 0

Answer: C

180) $|7 - 3|$

A) 8

B) 0

C) -4

D) 4

Answer: D

181) $-\left|-\frac{1}{4}\right|$

A) 4

B) -4

C) $\frac{1}{4}$

D) $-\frac{1}{4}$

Answer: C

Select the smaller of the two given numbers.

182) $-14, -4$

A) -14

B) -4

Answer: A

183) $-\frac{5}{18}, -\frac{5}{8}$

A) $-\frac{5}{18}$

B) $-\frac{5}{8}$

Answer: B

184) $-170, 2$

A) 2

B) -170

Answer: B

185) $18, |-30|$

A) 18

B) $|-30|$

Answer: A

186) $|-20|, |-24|$

A) $|-24|$

B) $|-20|$

Answer: B

187) $-|-4|, -|-20|$

A) $-|-20|$

B) $-|-4|$

Answer: A

188) $|10 - 1|, |6 - 4|$

A) $|10 - 1|$

B) $|6 - 4|$

Answer: B

Decide if the statement is true or false.

189) $-(-27) < -15$

A) True

B) False

Answer: B

190) $-(-7) > -21$

A) True

B) False

Answer: A

191) $-22 > -20$

A) True

B) False

Answer: B

192) $-16 \leq -13$

A) True

B) False

Answer: A

- 193) $-16 \leq -(-6)$
 A) True B) False
 Answer: A
- 194) $-12 \geq -(-7)$
 A) True B) False
 Answer: B
- 195) $|-14| < |-17|$
 A) False B) True
 Answer: B
- 196) $-|-12| \geq -|-20|$
 A) True B) False
 Answer: A

Refer to the table to answer the question.

Production Category	Change '98-'99	Change '99-'00
Public Relations	3.5	4.2
Training	1.7	2.8
Sales	-4.3	1.6
Catalog	2.3	-1.1

- 197) Which category and year shows the largest increase?
 A) Public Relations, '99-'00 B) Sales, '98-'99
 C) Public Relations, '98-'99 D) Catalog, '98-'99
 Answer: A
- 198) Which category and year shows the smallest absolute change?
 A) Catalog, '98-'99 B) Catalog '99-'00 C) Sales, '99-'00 D) Training '98-'99
 Answer: B

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

- 199) Is the integer 0 positive or negative? Explain.
 Answer: The integer is neither. It is not a signed integer.
 It is the starting point on a number line.
- 200) How is the order of operations applied to integers?
 Answer: The same way as for whole numbers.
- 201) What is the additive inverse of 0?
 Answer: 0 itself
- 202) How can you rewrite a subtraction of integers problem to make it easier to solve? Give an example.
 Answer: Change subtraction to addition, and change the sign of the subtrahend to its opposite.
 $-6 - (-3) = -6 + (+3) = -3$

203) Explain what happens when an integer is multiplied by 1, -1, and 0.

Answer: An integer multiplied by 1 gives the same integer, multiplied by -1 gives the opposite of the integer, and multiplied by 0 gives 0.

204) A whole number less than 6.3.

Answer: One example is 6. There are others.

205) Fill in the blanks with the correct numbers.

The opposite of -6 is _____.

The absolute value of -6 is _____.

The opposite of the absolute value of -6 is _____.

The absolute value of the opposite of -6 is _____.

Answer: 6, 6, -6, 6

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

Find the sum.

206) $11 + (-14)$

A) -3

B) 25

C) -25

D) 3

Answer: A

207) $-22 + 6$

A) -28

B) 16

C) 28

D) -16

Answer: D

208) $-17 + (-5)$

A) 12

B) -22

C) -12

D) 22

Answer: B

209) $-5.2 + (-6.5)$

A) -11.7

B) 1.3

C) 11.7

D) -1.3

Answer: A

210) $-234 + 345$

A) -111

B) 111

C) 579

D) -579

Answer: B

211) $\frac{3}{4} + \left(-\frac{11}{20} \right)$

A) $\frac{1}{20}$

B) $\frac{1}{5}$

C) 1

D) $\frac{1}{2}$

Answer: B

212) $-\frac{11}{16} + \frac{3}{4}$

A) $\frac{1}{16}$

B) $\frac{2}{3}$

C) $\frac{1}{64}$

D) $\frac{1}{4}$

Answer: A

213) $13\frac{1}{7} + \left(-6\frac{2}{7}\right)$

A) $18\frac{6}{7}$

B) $6\frac{6}{7}$

C) $6\frac{5}{7}$

D) $19\frac{6}{7}$

Answer: B

214) $-9\frac{8}{9} + 15\frac{7}{9}$

A) $5\frac{8}{9}$

B) $24\frac{8}{9}$

C) $23\frac{8}{9}$

D) $5\frac{7}{9}$

Answer: A

215) $22 + [(-23) + (-21)]$

A) 24

B) 20

C) -22

D) 66

Answer: C

216) $13 + [14 + (-16)]$

A) 15

B) 11

C) -17

D) 43

Answer: B

217) $-13 + [1 + (-12)]$

A) 0

B) 2

C) -24

D) 26

Answer: C

218) $4.2 + [(-4.1) + (-3.6)]$

A) -3.5

B) 4.7

C) 3.7

D) 11.9

Answer: A

219) $-4.2 + [(-1.9) + (-1.7)]$

A) -7.8

B) 4

C) 4.4

D) 0.6

Answer: A

220) $[-19 + (-17)] + [(-16) + (-14)]$

A) 6

B) -66

C) 4

D) -28

Answer: B

221) $[17 + (-9)] + [2 + (-25)]$

A) 53

B) 31

C) -19

D) -15

Answer: D

222) $-5.4 + [16.9 + (-15.7)]$

A) 38

B) 27.2

C) 6.6

D) -4.2

Answer: D

Find the difference.

223) $1 - 3$

A) -2

B) 2

C) -4

D) 4

Answer: A

- 224) $-6 - 12$
 A) -6 B) -18 C) 6 D) 18
 Answer: B
- 225) $-8 - (-2)$
 A) 6 B) -10 C) 10 D) -6
 Answer: D
- 226) $12 - (-4)$
 A) -8 B) 16 C) 8 D) -16
 Answer: B
- 227) $-42 - 42$
 A) 84 B) 0 C) -126 D) -84
 Answer: D
- 228) $-19 - (-19)$
 A) 57 B) -38 C) 38 D) 0
 Answer: D
- 229) $-10.7 - 13.8$
 A) -3.1 B) 24.5 C) 3.1 D) -24.5
 Answer: D
- 230) $-9.5 - (-5.0)$
 A) 4.5 B) -14.5 C) -4.5 D) 14.5
 Answer: C
- 231) $\frac{1}{8} - \left(-\frac{1}{2}\right)$
 A) $\frac{3}{8}$ B) $-\frac{5}{8}$ C) $-\frac{3}{8}$ D) $\frac{5}{8}$
 Answer: D
- 232) $-\frac{3}{4} - \frac{5}{8}$
 A) $-\frac{1}{4}$ B) -1 C) $\frac{11}{8}$ D) $-\frac{11}{8}$
 Answer: D
- 233) $-\frac{4}{5} - \left(-\frac{7}{10}\right)$
 A) $\frac{1}{10}$ B) $-\frac{11}{10}$ C) $-\frac{1}{10}$ D) $-\frac{3}{10}$
 Answer: C

$$234) \frac{8}{9} - \left(\frac{2}{5} - \frac{1}{9} \right)$$

$$A) -\frac{1}{3}$$

$$B) \frac{5}{9}$$

$$C) -\frac{3}{5}$$

$$D) \frac{3}{5}$$

Answer: D

$$235) \frac{5}{7} - \left(-\frac{2}{5} \right)$$

$$A) -\frac{39}{35}$$

$$B) \frac{11}{35}$$

$$C) -\frac{1}{5}$$

$$D) \frac{39}{35}$$

Answer: D

$$236) -\frac{3}{4} - \left(-\frac{5}{8} \right)$$

$$A) -\frac{1}{4}$$

$$B) \frac{1}{8}$$

$$C) -\frac{1}{8}$$

$$D) -1$$

Answer: C

$$237) \frac{2}{9} - \left(-\frac{1}{3} \right)$$

$$A) \frac{5}{9}$$

$$B) -\frac{1}{9}$$

$$C) -\frac{5}{9}$$

$$D) -\frac{1}{9}$$

Answer: A

$$238) \frac{5}{16} - \left(-\frac{1}{2} - \frac{1}{4} \right)$$

$$A) \frac{17}{16}$$

$$B) -\frac{3}{8}$$

$$C) \frac{1}{2}$$

$$D) \frac{17}{4}$$

Answer: A

$$239) \left(-\frac{2}{7} - \frac{1}{2} \right) - \left(-\frac{10}{7} - 4 \right)$$

$$A) -\frac{87}{14}$$

$$B) \frac{65}{14}$$

$$C) \frac{25}{14}$$

$$D) -\frac{47}{14}$$

Answer: B

Use order of operations to simplify the expression.

$$240) 21 - (10 + 20)$$

$$A) 31$$

$$B) 11$$

$$C) 51$$

$$D) -9$$

Answer: D

$$241) 22 + (-20 - 22)$$

$$A) 64$$

$$B) -20$$

$$C) 24$$

$$D) 20$$

Answer: B

$$242) (1 - 3) - 13$$

$$A) 11$$

$$B) -15$$

$$C) -9$$

$$D) 17$$

Answer: B

243) $-6 - |6 + (-4) + (-6)|$

A) 6

B) -10

C) -6

D) 10

Answer: B

244) $-5 + |7 + (-3) + 7|$

A) 8

B) 16

C) 6

D) -2

Answer: C

245) $14 - (7 - 8)$

A) 29

B) 15

C) 13

D) -1

Answer: B

246) $(8 - 1) - (-20 + 16)$

A) -3

B) -29

C) 11

D) 13

Answer: C

247) $(11 + 7) - (25 - 12)$

A) 5

B) 41

C) -41

D) 19

Answer: A

248) $-12 - [(8 - 1) - (-5 - 1)]$

A) 1

B) -25

C) -15

D) -9

Answer: B

249) $[-20.5 + (16.1 - 3.5)] - 2.5$

A) 30.6

B) -10.4

C) -37.6

D) -5.4

Answer: B

Write a numerical expression for the phrase and simplify it.

250) The difference between 6 and -18

A) $18 - 6$; 12

B) $6 - (-18)$; 24

C) $6 - (-18)$; -12

D) $-18 - 6$; -24

Answer: B

251) 16 less than -7

A) $16 - (-7)$; 23

B) $-7 - 16$; 23

C) $16 - 7$; 9

D) $-7 - 16$; -23

Answer: D

252) The sum of 7 and -7, decreased by 8

A) $[7 + (-8)] + 7$; 6

B) $[7 - (-7)] - 8$; 6

C) $[7 + (-7)] - 8$; -8

D) $[7 + (-7)] + 8$; 8

Answer: C

253) 18 less than the difference between 3 and -8

A) $(3 - 8) - 18$; -23

B) $[3 - (-8)] - 18$; -23

C) $[3 - (-8)] - 18$; -7

D) $18 - [3 - (-8)]$; 7

Answer: C

254) 11 less than the difference between 20 and -5

A) $-5 - 20 - 11$; -36

B) $5 - 20 - 11$; -36

C) $11 - 20 - (-5)$; -4

D) $[20 - (-5)] - 11$; 14

Answer: D

Solve the problem.

- 255) The two charts show the weight gain of some people and the weight loss of other people. Use the information given to answer the question below.

Weight gain (in grams)		Weight loss (in grams)	
Abe	3,051	Don	-2,958
Bob	4,208	Ed	-2,177
Carl	1,695	Frank	-857

What is the difference between the weight gain of Bob and the weight loss of Don?

- A) -7166 g B) 7166 g C) -1250 g D) 1250 g

Answer: B

- 256) During one year 31 new employees began work at Daniel's Manufacturing Company and 13 employees left. At the beginning of the year there were 232 employees. What was the number of employees at the end of the year?

- A) 250 employees B) 188 employees C) 276 employees D) 263 employees

Answer: A

- 257) A football team gained 38 yards on one play, lost 26 yards on another, and gained 31 yards on the last play of the first half. They had already gained 202 yards during the half. What was the total yardage gain for the first half?

- A) 271 yd B) 159 yd C) 245 yd D) 297 yd

Answer: C

- 258) Your bank account has \$77 in it when you write checks for \$41, \$12, and \$35. You then deposit \$60 and \$41. How much is in the account? Are you overdrawn?

- A) -\$64, yes B) \$125, no C) \$64, no D) \$90, no

Answer: D

- 259) A bike road race starts at an elevation of 840 feet and passes through 5 stages where the elevation changes by -691 feet, 371 feet, -558 feet, -12 feet, and 59 feet. At what elevation does the race end?

- A) -2531 ft B) 2531 ft C) 9 ft D) 1207 ft

Answer: C

- 260) The stock market gained 28 points on Tuesday and lost 42 points on Wednesday. Find the difference between these changes.

- A) -70 points B) 14 points C) -14 points D) 70 points

Answer: D

- 261) Nikki is fishing from a bank 17 feet above water level. In this location, the fish tend to feed at 28 feet below the surface. How long must Nikki's fish line be to reach the fish?

- A) -11 ft B) 11 ft C) -17 ft D) 45 ft

Answer: D

- 262) Company A showed a profit of \$80,830 last year, while Company B had a loss of \$83,870. Find the difference between these amounts.

- A) \$164,700 B) -\$3040 C) \$3040 D) -\$164,700

Answer: A

263) The temperature at the South pole was 27° at 8 am. At 3 pm, it was -8° . By how many degrees did the temperature drop?

A) by 19°

B) by 35°

C) by -19°

D) by -35°

Answer: B

264) The ocean surface is at 0 ft elevation. A diver is underwater at an elevation of -150 ft near a rock formation. In this area, the ocean floor has an elevation of -136 ft. The rock formation rises to a peak 107 ft above the ocean floor. How many feet below the top of the rock formation is the diver?

A) 121 ft

B) 29 ft

C) -14 ft

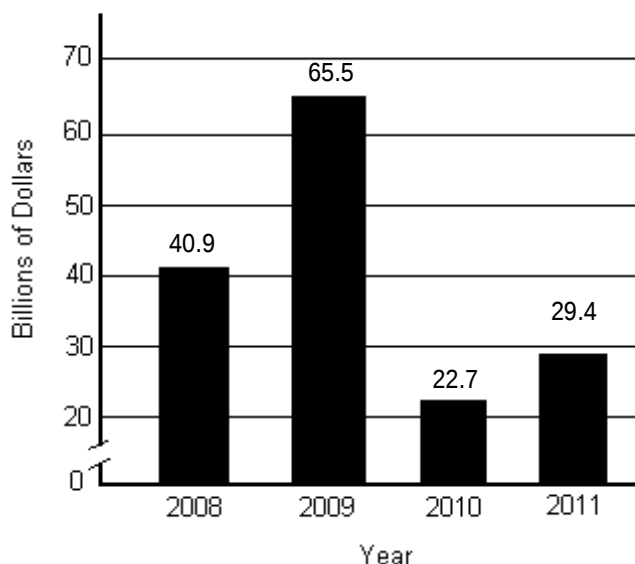
D) 43 ft

Answer: A

Provide an appropriate response.

265) The bar graph shows governmental budget outlays for Country X's Department of the Environment for the years 2008 through 2011. Use a signed number to represent the change in outlay for (a) 2008 to 2009 and (b) 2010-2011.

Governmental Budget Outlays for Department of Environment



A) (a) 106.4 billion dollars, (b) 52.1 billion dollars

C) (a) 24.6 billion dollars, (b) 6.7 billion dollars

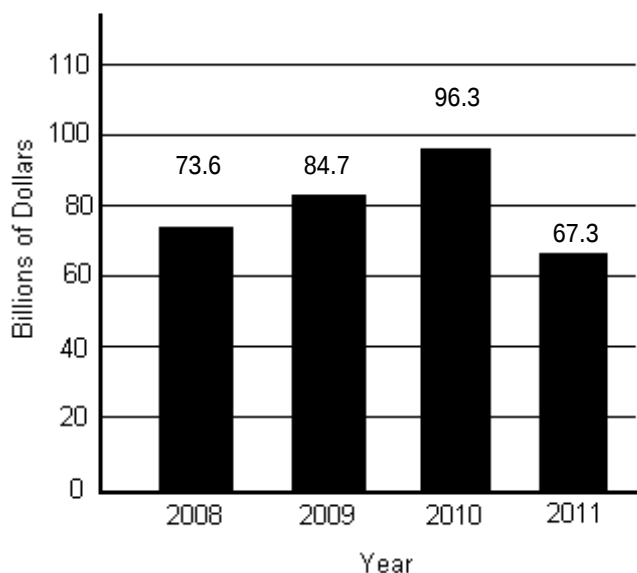
B) (a) -24.6 billion dollars, (b) -6.7 billion dollars

D) (a) -106.4 billion dollars, (b) -52.1 billion dollars

Answer: C

- 266) The bar graph shows governmental budget outlays for Country X's Department of Defense for the years 2008 through 2011. Use a signed number to represent the change in outlay for (a) 2008 to 2011 and (b) 2009-2011.

Governmental Budget Outlays for Department of Defense



- A) (a) -6.3 billion dollars, (b) -17.4 billion dollars
 B) (a) 140.9 billion dollars, (b) 152 billion dollars
 C) (a) 6.3 billion dollars, (b) 17.4 billion dollars
 D) (a) -29 billion dollars, (b) -6.3 billion dollars

Answer: A

Answer the question or complete the sentence to make a true statement.

- 267) In order to add -3 and 2, I should begin by finding the _____ of the _____ of -3 and 2.
 A) Difference, additive inverses
 B) Difference, absolute values
 C) Sum, absolute values
 D) Sum, opposites

Answer: B

- 268) In order to add -8 and -8, I should begin by finding the _____ of the _____ of -8 and -8.
 A) Sum, absolute values
 B) Opposite, additive inverses
 C) Additive inverses, opposites
 D) Difference, absolute values

Answer: A

- 269) When the absolute value of a positive number equals the absolute value of a negative number, the sum of the positive and the negative number is _____.
 A) Positive
 B) Negative
 C) Zero
 D) Not known

Answer: C

- 270) According to the rules for the order of operations, what should be the first step when simplifying the expression $[9 + (-3 + 3)] + (-6)$?
 A) Find the sum of 3 and -6
 B) Find the sum of -3 and 3
 C) Find the sum of 9 and -3
 D) Find the sum of 9 and -6

Answer: B

- 271) According to the rules for the order of operations, what should be the first step when simplifying the expression $[-5 + (-10 + 3)] + (-3 + 4)$?
- A) Find the sum of -5 and -10
 B) Find the sum of -5 and -3
 C) Find the sum of 3 and -3
 D) Find the sum of -10 and 3

Answer: D

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

- 272) Under what condition will the sum of a positive number and a negative number be negative?
 Answer: The absolute value of the negative number must be larger than the absolute value of the positive number.
- 273) Under what condition will the sum of a positive number and a negative number be positive?
 Answer: The absolute value of the positive number must be larger than the absolute value of the negative number.

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

- 274) The sum of two positive numbers will always be a _____ number.
 A) Negative
 B) Positive
 Answer: B
- 275) The sum of a negative number and 0 will always be a _____ number.
 A) Negative
 B) Positive
 Answer: A
- 276) The sum of three negative numbers will always be a _____ number.
 A) Positive
 B) Negative
 Answer: B

Provide an appropriate response.

- 277) If a , b , and c are real numbers, is this statement true or false? $0 - a = -a$
 A) True
 B) False
 Answer: A
- 278) If a , b , and c are real numbers, is this statement true or false? If $a = b$, then $a - b = b - c$.
 A) True
 B) False
 Answer: B
- 279) If a , b , and c are real numbers, is this statement true or false? $-(-a) = -a$
 A) True
 B) False
 Answer: B
- 280) If a , b , and c are real numbers, is this statement true or false? $-(a + b) = -a - b$
 A) True
 B) False
 Answer: A
- 281) If a , b , and c are real numbers, is this statement true or false? $a - 0 = -a$
 A) True
 B) False
 Answer: B

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

282) Is this statement true or false? Why? $(4 - 4) - 4 = 4 - (4 - 4)$

Answer: False. Answers will vary.

283) Is this statement true or false? Why? $(2 + 2) - 2 = 2 + (2 - 2)$

Answer: True. Answers will vary.

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

284) Given the problem $8 - [7 - (-8 - 19)]$, is the first step in solving to subtract -8 from -19?

A) Yes

B) No

Answer: B

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

285) Make up a subtraction problem in which the difference between two negative numbers results in a positive number.

Answer: Answers may vary. One possible answer is $-4 - (-14) = 10$.

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

Find the product.

286) $-5(16)$

A) 11

B) -30

C) -80

D) 50

Answer: C

287) $-11(-11)$

A) -131

B) 131

C) 121

D) -121

Answer: C

288) $-6(76)$

A) 556

B) -456

C) -426

D) 432

Answer: B

289) $-29(0)$

A) -29

B) 29

C) 1

D) 0

Answer: D

290) $-\frac{5}{16} \left(-\frac{24}{25} \right)$

A) $\frac{3}{10}$

B) $\frac{3}{5}$

C) $\frac{5}{3}$

D) $-\frac{1}{5}$

Answer: A

291) $-40 \left(-\frac{5}{16} \right)$

A) $-\frac{5}{2}$

B) $\frac{5}{2}$

C) $-\frac{25}{2}$

D) $\frac{25}{2}$

Answer: D

Find all integer factors of the given number.

292) 30

- A) -30, -20, -10, -6, -5, -3, -2, -1, 1, 2, 3, 5, 6, 10, 20, 30
- B) -30, -5, -1, 1, 5, 30
- C) -30, -15, -10, -6, -5, -3, -2, -1, 1, 2, 3, 5, 6, 10, 15, 30
- D) -30, -10, -6, -5, 5, 6, 10, 30

Answer: C

293) 23

- A) -23, -1, 1, 23
- B) -23, -11, -7, -3, -2, -1, 1, 2, 3, 7, 11, 23
- C) -23, -11, -7, -4, -2, -1, 1, 2, 4, 7, 11, 23
- D) -23, -11, -2, -1, 1, 2, 11, 23

Answer: A

294) 125

- A) -25, -5, -1, 1, 5, 25
- B) -125, -25, -5, 5, 25, 125
- C) -125, -62, -5, 5, 62, 125
- D) -125, -25, -5, -1, 1, 5, 25, 125

Answer: D

295) 27

- A) -27, -9, -3, 3, 9, 27
- B) -27, -13, -3, 3, 13, 27
- C) -9, -3, -1, 1, 3, 9
- D) -27, -9, -3, -1, 1, 3, 9, 27

Answer: D

296) 110

- A) -110, -55, -11, -10, -5, -2, 2, 5, 10, 11, 55, 110
- B) -110, -55, -22, -11, -10, -5, -4, -2, -1, 1, 2, 4, 5, 10, 11, 22, 55, 110
- C) -110, -22, -11, -10, -5, -2, -1, 1, 2, 5, 10, 11, 22, 110
- D) -110, -55, -22, -11, -10, -5, -2, -1, 1, 2, 5, 10, 11, 22, 55, 110

Answer: D

Find the quotient.

297) $\frac{-60}{3}$

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

Answer: D

298) $\frac{42}{-2}$

- A) -21
- B) 21
- C) -31
- D) $-\frac{1}{21}$

Answer: A

299) $\frac{-480}{96}$

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

Answer: D

300) $\frac{-720}{-90}$

A) -2

B) -8

C) 8

D) $\frac{1}{8}$

Answer: C

301) $\frac{0}{-97}$

A) 0

B) 97

C) Undefined

D) 1

Answer: A

302) $-\frac{4}{13} \div \left(-\frac{7}{12}\right)$

A) $-\frac{48}{91}$

B) $\frac{48}{91}$

C) $\frac{91}{48}$

D) $-\frac{7}{39}$

Answer: B

303) $\frac{9}{14} \div \left(-\frac{2}{15}\right)$

A) $-\frac{135}{28}$

B) $\frac{28}{135}$

C) $\frac{135}{28}$

D) $-\frac{3}{35}$

Answer: A

304) $\frac{-3}{0}$

A) 3

B) 0

C) Undefined

D) -3

Answer: C

305) $\frac{4.948}{4}$

A) 1.237

B) -0.31

C) 0.31

D) -1.237

Answer: A

Perform the indicated operations.

306) $1 - 8 \cdot 9$

A) -63

B) 73

C) -71

D) 71

Answer: C

307) $12 + 4 \cdot 28 - 17$

A) 107

B) 176

C) 27

D) 431

Answer: A

308) $25 + 15 \cdot 25 - (-27)$

A) 92

B) 427

C) 1027

D) 2080

Answer: B

309) $4 \cdot (-26) + 22 \cdot (-21)$
 A) -566 B) -336 C) 1722 D) -1722
 Answer: A

310) $21 \cdot 3 - 23 \cdot 21$
 A) -420 B) 22 C) -8820 D) 840
 Answer: A

311) $12 - (-5) \cdot (-9) + 9$
 A) -144 B) 25 C) -126 D) -24
 Answer: D

312) $-2(3 - 6)$
 A) -6 B) -18 C) -12 D) 6
 Answer: D

313) $(21 - 32)(25 - 35)$
 A) -110 B) 1645 C) 3180 D) 110
 Answer: D

314) $6[(-5) + 8(-6 + 4)]$
 A) -36 B) -126 C) -46 D) -40
 Answer: B

315) $5(-6) + |2 - 14|$
 A) -18 B) 18 C) 42 D) -42
 Answer: A

Perform the indicated operation.

316) $\frac{-3(-6)}{4 - (-5)}$
 A) 18 B) -2 C) -18 D) 2
 Answer: D

317) $\frac{-8(1) + 8(6)}{-5 - (-7)}$
 A) -20 B) -28 C) 20 D) 28
 Answer: C

318) $\frac{-10(-2) - (-10)(-6)}{-6(2) - 4(-2)}$
 A) 10 B) 20 C) -10 D) 2
 Answer: A

Evaluate the expression, given $x = -2$, $y = 3$, and $a = -4$.

319) $9x + 8y - 2a$
 A) -8 B) 14 C) -56 D) 19
 Answer: B

320) $(8x - 3y)(-2a)$

A) -200

B) 200

C) 240

D) 160

Answer: A

321) $-8a + 5y + 4x$

A) 8

B) -55

C) 39

D) 34

Answer: C

322) $(3 + x)(-9 + y)(-8 - a)$

A) -24

B) 24

C) 72

D) 360

Answer: B

323) $(-4a)(6x + 2y)$

A) -96

B) 96

C) 224

D) 288

Answer: A

324) $\left(\frac{1}{4}x - \frac{4}{3}y\right)\left(-\frac{1}{6}a\right)$

A) -18

B) $\frac{41}{18}$

C) -3

D) $-\frac{7}{3}$

Answer: C

325) $\frac{-4ax + 8y}{a + y}$

A) 8

B) -1

C) -56

D) 56

Answer: A

326) $9y - 6a^2$

A) -21

B) -69

C) 3

D) 123

Answer: B

327) $\frac{4a^2 - y}{x + 2}$

A) $-\frac{67}{4}$

B) $\frac{61}{4}$

C) Undefined

D) 0

Answer: C

Write a numerical expression for the phrase and simplify it.

328) The product of -7 and 8, added to 4

A) $(-7)(8)(4)$; -224

B) $(4)(-7 + 8)$; 4

C) $4 + (-7)(8)$; -52

D) $(-7 + 4)(8)$; -24

Answer: C

329) The product of 3 and -2, added to -4

A) $(-4 + 3)(-2)$; 2

B) $(-4) + (3)(-2)$; -10

C) $(-4)(-2)(3)$; 24

D) $(-4)(-2) + 3$; 11

Answer: B

330) The product of -8 and 1, subtracted from -9

A) $(-9)(-8)(1)$; 72

B) $-9 + (-8)(1)$; -17

C) $[-9 - (-8)](1)$; -1

D) $-9 - (-8)(1)$; -1

Answer: D

331) Twice the product of -5 and -7, subtracted from 9

A) $(9)(2)(-5)(-7)$; 630

B) $(9 - 2)(-5 \cdot -7)$; 245

C) $(9)(2)(-5 + 7)$; 36

D) $9 - 2(-5 \cdot -7)$; -61

Answer: D

332) 3 subtracted from the product of -9.8 and 8.1

A) $(3)(-9.8)(8.1)$; -238.14

C) $3 - (-9.8)(8.1)$; 82.38

B) $[3 + (-9.8)](8.1)$; -55.08

D) $(-9.8)(8.1) - 3$; -82.38

Answer: D

333) The product of 3 and the difference between 9 and -1

A) $3[9 - (-1)]$; 30

B) $(3 - 9)(-1)$; 6

C) $(3)(9) - (-1)$; 28

D) $3[-1 - 9]$; -30

Answer: A

334) The product of -6 and the sum of 9 and -3

A) $-6[9 + (-3)]$; -36

B) $-6 + (9)(-3)$; -33

C) $(-6)(9) + (-3)$; -57

D) $(-6)(-3) + 9$; 27

Answer: A

335) Three-eighths of the sum of -4 and -12.

A) $\frac{3}{8}[(-4) + (-12)]$; -12

B) $\frac{3}{8}[(-4) + (-12)]$; -6

C) $\frac{3}{8} + [(-4) + (-12)]$; 1

D) $(3 + 8)(-4) + (-12)$; -56

Answer: B

336) Seven-ninths of the difference between -9 and -27.

A) $\frac{7}{9}[(-9) - (-27)]$; 14

B) $7(9)[(-9) - (-27)]$; 14

C) $\frac{7}{9} + [(-9) - (-27)]$; 42

D) $7(9)[(-9) - (-27)]$; 1134

Answer: A

337) The quotient of -12 and -2

A) $\frac{-12}{-2}$; $\frac{1}{6}$

B) $\frac{-2}{-12}$; $\frac{1}{6}$

C) $(-2)(-12)$; 24

D) $\frac{-12}{-2}$; 6

Answer: D

338) The quotient of -18 and the sum of 2 and -8

A) $-18 + 2 + (-8)$; -24

B) $\frac{-18}{2 + (-8)}$; 3

C) $\frac{-18}{2 + (-8)}$; -3

D) $\frac{2 + (-8)}{-18}$; $\frac{1}{3}$

Answer: B

339) The quotient of -126 and the sum of 7 and 14

A) $\frac{7+14}{-126}; -\frac{1}{6}$

B) $\frac{-126}{7-6}; 6$

C) $\frac{-126}{7+14}; -6$

D) $-126 + 7 + 14; -105$

Answer: C

340) The sum of 43 and -3, divided by the product of 4 and -5

A) $\frac{43+3}{4-(-5)}; -40$

B) $43 + \frac{-3}{4(-5)}; -2$

C) $\frac{4(-5)}{43+(-3)}; -\frac{1}{2}$

D) $\frac{43+(-3)}{4(-5)}; -2$

Answer: D

341) The sum of -11 and -9, divided by the product of 1 and -4

A) $-11 + \frac{-9}{1(-4)}; -\frac{1}{4}$

B) $-11 + \frac{-9}{1+(-4)}; 6$

C) $\frac{-11+(-9)}{1-(-4)}; -4$

D) $\frac{-11+(-9)}{1(-4)}; 5$

Answer: D

342) The product of $\frac{1}{2}$ and $-\frac{4}{7}$, divided by $\frac{3}{4}$.

A) $\frac{\left(\frac{1}{2}\right)\left(-\frac{4}{7}\right)}{\frac{3}{4}}; -\frac{8}{21}$

B) $\frac{\left(\frac{3}{4}\right)}{\left(\frac{1}{2}\right)\left(-\frac{4}{7}\right)}; -\frac{21}{8}$

C) $\frac{\left(\frac{1}{2}\right)\left(-\frac{4}{7}\right)}{\frac{3}{4}}; -\frac{3}{14}$

D) $\frac{\left(\frac{1}{2}\right)}{\left(-\frac{4}{7}\right)\left(\frac{3}{4}\right)}; -\frac{7}{6}$

Answer: A

Write the statement in symbols, using x as the variable, and find the solution by guessing or by using trial and error. All solutions come from the list of integers between -12 and 12 inclusive.

343) 6 times a number is 18.

A) $-6x = 18; -3$

B) $3x = 18; 6$

C) $\frac{18}{3} = x; 6$

D) $6x = 18; 3$

Answer: D

344) The quotient of a number and 4 is -3.

A) $\frac{-12}{x} = 4; -3$

B) $\frac{x}{-3} = 4; -12$

C) $\frac{x}{4} = -3; -12$

D) $4x = -\frac{1}{3}; -\frac{1}{12}$

Answer: C

345) 6 less than a number is 3.

A) $x - 6 = 3; 9$

B) $x + 6 = 3; -3$

C) $6 - x = 3; 3$

D) $x + 3 = 6; 3$

Answer: A

346) When 3 is added to another number the result is -8.

A) $-8 - 3 = x; -11$

B) $x + 3 = -8; -11$

C) $x - 8 = 3; 11$

D) $3 - 8 = x; -5$

Answer: B

Find the average of the numbers.

347) 14, 7, 7, 14, 13

A) 11

B) 13.75

C) 10

D) 56

Answer: A

348) 11, 14, 3, 1, 8, 18, 16, 1

A) 8

B) 9

C) 10.29

D) 12

Answer: B

349) 15, 9, 13, 13, -5

A) 11.25

B) 7.5

C) 9

D) 8

Answer: C

350) What is the average of all integers between -3 and 19, inclusive of both?

A) -18

B) 9

C) 8

D) 184

Answer: C

351) What is the average of all the even integers between -12 and 6, inclusive of both?

A) -30

B) -2

C) -22

D) -3

Answer: D

Provide an appropriate response.

352) The product of two negative numbers is negative.

A) True

B) False

Answer: B

353) The product of three negative numbers is positive.

A) True

B) False

Answer: B

354) The cube of a negative number is negative.

A) True

B) False

Answer: A

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

355) What values of a and b make the result negative? $-(a - b)$

Answer: a must be greater than b

356) If x and y are both replaced by negative numbers, is the value of $6x - 3y$ positive or negative?

Answer: Positive if $|3y|$ is greater than $|6x|$; negative if the opposite is true.

Answer the question.

357) The reciprocal of a positive number is a _____ number.

Answer: Positive

358) Is the following expression undefined? $\frac{6 - 6}{6 - 6}$

Answer: Yes

359) Is the following expression undefined? $\frac{2 - 2}{2 - 2}$

Answer: Yes

360) A positive number multiplied by two negative numbers and then divided by a negative number is ____.

Answer: Negative

361) The average of a group of negative numbers is a ____ number.

Answer: negative

362) The only real number that does not have a reciprocal is ____.

Answer: zero

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

363) Assume a is positive, b is negative, and c is positive for the expression

$$a + (b \cdot c)$$

Tell whether the value of the given expression is positive, negative or cannot be determined.

A) Negative

B) Cannot be determined

C) Positive

Answer: B

364) Assume a is positive, b is negative, and c is positive for the expression $(b - a) / c$

Tell whether the value of the given expression is positive, negative or cannot be determined.

A) Cannot be determined

B) Positive

C) Negative

Answer: C

365) Assume a is positive, b is negative, and c is positive for the expression

$$a \cdot b^3 \cdot c$$

Tell whether the value of the given expression is positive, negative or cannot be determined.

A) Positive

B) Cannot be determined

C) Negative

Answer: C

Use the commutative or the associative property to complete the statement. State which property is used.

366) $6 + (-4) = -4 + \underline{\hspace{1cm}}$

A) -6; commutative property

B) 6; commutative property

C) -6; associative property

D) 6; associative property

Answer: B

367) $-2 \cdot 4 = 4 \cdot \underline{\hspace{1cm}}$

A) 2; associative property

B) 2; commutative property

C) -2; associative property

D) -2; commutative property

Answer: D

368) $7 + (2 + 6) = (7 + \underline{\hspace{1cm}}) + 6$

A) -2; commutative property

B) -2; associative property

C) 2; commutative property

D) 2; associative property

Answer: D

369) $11 \cdot (3 \cdot 8) = (11 \cdot \underline{\hspace{1cm}}) \cdot 8$

A) 3; commutative property

B) 3; associative property

C) -3; associative property

D) -3; commutative property

Answer: B

Decide whether the statement is an example of the commutative, associative, identity, inverse, or distributive property.

370) $4 \cdot 1 = 4$

A) Commutative

B) Identity

C) Inverse

D) Distributive

Answer: B

371) $(9 + 4) + 4 = (4 + 9) + 4$

A) Associative

B) Distributive

C) Identity

D) Commutative

Answer: D

372) $7(x + 7) = 7x + 7 \cdot 7$

A) Commutative

B) Associative

C) Distributive

D) Identity

Answer: C

373) $7 + (-7) = 0$

A) Identity

B) Associative

C) Inverse

D) Commutative

Answer: C

374) $5 + 3 = 3 + 5$

A) Associative

B) Distributive

C) Commutative

D) Identity

Answer: C

375) $(8 \cdot 4) \cdot 1 = 8 \cdot (4 \cdot 1)$

A) Distributive

B) Associative

C) Identity

D) Commutative

Answer: B

376) $5 \cdot 4 = 4 \cdot 5$

A) Identity

B) Commutative

C) Distributive

D) Associative

Answer: B

377) $\left(\frac{8}{5}\right)\left(\frac{5}{8}\right) = 1$

A) Associative

B) Commutative

C) Inverse

D) Identity

Answer: C

378) $9(2f) - 9(8g) = 9(2f - 8g)$

A) Identity

B) Distributive

C) Commutative

D) Associative

Answer: B

Find the sum.

379) $192 + 68 + 8 + 2$

A) 280

B) 250

C) 270

D) 260

Answer: C

380) $2994 + 4 + 16 + 6$

A) 2020

B) 3020

C) 2010

D) 3010

Answer: B

381) $26 + 112 + 74 + 188$

A) 400

B) 500

C) 410

D) 300

Answer: A

382) $109 + 6 + (-9) + (-6)$

A) 130

B) 100

C) 118

D) 112

Answer: B

383) $734 + 846 + (-34) + (-46)$

A) 1592

B) 1568

C) 1580

D) 1500

Answer: D

384) $1736 + 1314 + (-36) + (-14)$

A) 3072

B) 3100

C) 3000

D) 3028

Answer: C

Find the product.

385) $2(73)(5)$

A) 375

B) 732

C) 730

D) 511

Answer: C

386) $-5(47)(2)$

A) -473

B) -141

C) 84

D) -470

Answer: D

387) $-5 \cdot 4 \cdot 67 \cdot (-5)$

A) -335

B) -6700

C) 670

D) 6700

Answer: D

388) $25 \cdot (-2) \cdot 73 \cdot 2$

A) 7295

B) 1825

C) -1825

D) -7300

Answer: D

Use the properties of real numbers to simplify the expression.

389) $-\frac{3}{5} + \frac{7}{8} + \frac{9}{8} + \frac{3}{5}$

A) 8

B) 2

C) 4

D) 0

Answer: B

390) $\frac{8}{3}(-0.23)\left(\frac{3}{8}\right)$

A) -0.23

B) $\frac{8}{3}$

C) 1

D) -1

Answer: A

Use the distributive property to rewrite the expression. Simplify if possible.

391) $6(x + 9)$

A) $6x + 9$

B) $6x + 54$

C) $54x$

D) $6x + 6$

Answer: B

392) $7(5x + 7y + 8)$
 A) $35x + 49y + 8$ B) $35x + 7y + 56$ C) $35x + 7y + 8$ D) $35x + 49y + 56$
 Answer: D

393) $2(2r + 6 + 6s)$
 A) $4r + 12 + 12s$ B) $4r + 12 + 6s$ C) $4r + 6 + 6s$ D) $4r + 6 + 12s$
 Answer: A

394) $9(6x) + 9(-3y)$
 A) $18(6x - 3y)$ B) $54x - 27y$ C) $9x(6 - 3) = 27x$ D) $9(6x - 3y)$
 Answer: D

395) $-2(6x + 6y)$
 A) $-12x - 12y$ B) $-24x$ C) $-12x + 12y$ D) $12x + 12y$
 Answer: A

396) $6x + 6z$
 A) $6(x + z)$ B) $6(xz)$ C) $36(x + z)$ D) $12(x + z)$
 Answer: A

397) $\frac{6}{5}(55x + 20y)$
 A) $90xy$ B) $90(x + y)$ C) $66x + 24y$ D) $11x + 4y$
 Answer: C

Write the expression without parentheses.

398) $-(4x + 2y)$
 A) $4x - 2y$ B) $-4x - 2y$ C) $-4x + 2y$ D) $4x + 2y$
 Answer: B

399) $-(-9v - 2r)$
 A) $-9v + 2r$ B) $9v + 2r$ C) $9v - 2r$ D) $-9v - 2r$
 Answer: B

400) $-(-9m + 7n - 6p)$
 A) $9m - 7n - 6p$ B) $-9m + 7n - 6p$ C) $9m - 7n + 6p$ D) $-9m + 7n + 6p$
 Answer: C

401) $-(2z - 3w + 8y)$
 A) $-2z - 3w - 8y$ B) $-2z + 3w + 8y$ C) $-2z - 3w + 8y$ D) $-2z + 3w - 8y$
 Answer: D

402) $-(-9t - 4r - 8s)$
 A) $-9t - 4r - 8s$ B) $-9t - 4r + 8s$ C) $9t + 4r - 8s$ D) $9t + 4r + 8s$
 Answer: D

403) $-(7n + 9w + 2g)$
 A) $7n - 9w + 2g$ B) $-7n - 9w + 2g$ C) $-7n - 9w - 2g$ D) $7n + 9w + 2g$
 Answer: C

Answer the question.

404) There is an identity property for both addition and multiplication. Is there an identity property for subtraction?

If so, state the property.

A) Yes. $x - 0 = x$

B) No.

Answer: A

405) There is a distributive property for multiplication with respect to addition: $a(b + c) = ab + ac$. Is there a distributive property for division with respect to addition? If so, state the property.

A) Yes. $a/(b + c) = a/b + a/c$

B) No.

Answer: B

406) Choose the expression that is equivalent to the following: $0 + 5c$

A) $-5c$

B) $5c$

C) $5 + c$

D) 0

Answer: B

407) Choose the expression that is equivalent to the following: $1(9y^3)$

A) 1

B) $9y^3$

C) $9y^4$

D) $10y^3$

Answer: B

408) Choose the expression that is equivalent to the following: $8(3a) + 8(7b)$

A) $16(10ab)$

B) $8(3a + 7b)$

C) $8(10ab)$

D) $16(3a + 7b)$

Answer: B

409) Choose the expression that is equivalent to the following: $9x + 3y$

A) $3(3x + y)$

B) $3(3x + 3y)$

C) $3(6x + y)$

D) $12xy$

Answer: A

410) Choose the expression that is equivalent to the following: $(4x + 7y)(8y + 5x)$

A) $(4x + 7y)(5x + 8y)$

B) $(4x + 5x)(7y + 8y)$

C) $9x + 15y$

D) $(4x + 7y)(5y + 8x)$

Answer: A

411) Choose the expression that is equivalent to the following: $(8x + 6y)(6y^2)$

A) $(6y^2)(8x + 6y)$

B) $(8x) + (6y)(6y^2)$

C) $8x + (6y + 6y^2)$

D) $(8x + 6y^2)(6y)$

Answer: A

412) Choose the expression that is equivalent to the following: $8(\frac{1}{8})$

A) $\frac{1}{64}$

B) $8 + \frac{1}{8}$

C) $\frac{8}{8}$

D) $8\frac{1}{8}$

Answer: C

413) Choose the expression that is equivalent to the following: $4 - 4$

A) $4 + (-4)$

B) $(4)(4)$

C) $2(4)$

D) $(-2)(4)$

Answer: A

Simplify the expression.

414) $7a - 4a + 3$

A) $3a + 3$

B) $6a$

C) $11a + 3$

D) $-3a + 3$

Answer: A

415) $2 + 3(2 - 8m)$

A) $6 - 24m$

B) $8 + 24m$

C) $8 - 8m$

D) $8 - 24m$

Answer: D

416) $-3 - (7 - 2t)$

A) $-10 + 2t$

B) $-4 - 2t$

C) $4 - 2t$

D) $10 + 2t$

Answer: A

417) $3g + 18 - 5$

A) $3g + 23$

B) $16g$

C) $3g - 13$

D) $3g + 13$

Answer: D

Give the numerical coefficient of the term.

418) z

A) 1

B) z

C) 0

D) -1

Answer: A

419) $-6y^8$

A) y^8

B) 6

C) -6

D) 8

Answer: C

420) $-3y$

A) 3

B) y

C) -3

D) $3y$

Answer: C

421) -4

A) -4

B) 1

C) 0

D) 4

Answer: A

422) 13

A) -1

B) 13

C) 1

D) 0

Answer: B

423) qz

A) q

B) 0

C) 1

D) qz

Answer: C

424) $-w$

A) -1

B) $-w$

C) 1

D) 0

Answer: A

425) $11k^2$

A) 2

B) 121

C) 22

D) 11

Answer: D

Identify the group of terms as like or unlike.

426) $5z, -13z$

A) Unlike

B) Like

Answer: B

427) $14a^3, 14a^2$
 A) Like
 Answer: B

B) Unlike

428) $12m, 5m, -15m$
 A) Unlike
 Answer: B

B) Like

429) $9, 15, -6$
 A) Like
 Answer: A

B) Unlike

430) $5b, 13, 6a$
 A) Like
 Answer: B

B) Unlike

431) $-12m, -8m$
 A) Unlike
 Answer: B

B) Like

432) y, z
 A) Like
 Answer: B

B) Unlike

433) $10v^6, -10v^2$
 A) Unlike
 Answer: A

B) Like

434) $7v^4, -13v^4$
 A) Like
 Answer: A

B) Unlike

Simplify the expression.

435) $5x + 6x$
 A) $30x$
 Answer: C

B) $22x$

C) $11x$

D) $11x^2$

436) $-6p - 2p$
 A) $4p$
 Answer: D

B) $4p^2$

C) $-4p$

D) $-8p$

437) $3x + x$
 A) $4x$
 Answer: A

B) $3x + 1$

C) $7x$

D) $3x$

438) $3x - 5 - 18x - 2$
 A) $15x - 7$
 Answer: C

B) $-15x - 3$

C) $-15x - 7$

D) $15x - 3$

439) $-4y + 2 - 1 + 6 + y - 7$

A) $-5y + 1$

B) $-3y - 1$

C) $-3y$

D) $-5y$

Answer: C

440) $-8b + 3 + 6b + 3b - 8$

A) $b - 5$

B) $b + 3$

C) $b + 8$

D) $b - 8$

Answer: A

441) $-\frac{1}{12} + 9y + \frac{17}{12}y - 5 + \frac{7}{12}y$

A) $11y - \frac{61}{12}$

B) $\frac{49}{6}y - 4$

C) $\frac{32}{3}y$

D) $11 + 4$

Answer: A

442) $3p^2 + 7p^3 - 9p^2 - 5p^3$

A) $-4p^2$

B) $10p^2 - 14p^3$

C) $-6p^2 + 2p^3$

D) $-4p^2p^3$

Answer: C

443) $4p + 2(6 - 5p)$

A) $-1p + 12$

B) $14p - 12$

C) $-6p + 12$

D) $6p - 12$

Answer: C

444) $100[0.03(x - 14)]$

A) $3x + 42$

B) $0.3x - 42$

C) $0.03x + 42$

D) $3x - 42$

Answer: D

445) $9(y + 5) - 3$

A) $14y - 3$

B) $9y + 2$

C) $9y + 42$

D) $9y + 18$

Answer: C

446) $-\frac{4}{7}(z - 16) - \frac{1}{14}z$

A) $\frac{9}{14}z + \frac{64}{7}$

B) $\frac{9}{14}z - \frac{64}{7}$

C) $\frac{1}{2}z + 16$

D) $-\frac{9}{14}z + \frac{64}{7}$

Answer: D

447) $-2(10r + 4) + 10(7r + 2)$

A) $-28r$

B) $50r + 4$

C) $50r + 12$

D) $8r + 2$

Answer: C

448) $(8z + 8) - (3z - 5)$

A) $5z + 3$

B) $5z - 13$

C) $11z + 13$

D) $5z + 13$

Answer: D

449) $-5(3t + 2) - (2t + 7) - 4t + 9$

A) $21t + 9$

B) $-21t + 12$

C) $-21t - 8$

D) $-17t + 6$

Answer: C

450) $-4.1p + 5.7 - (8p + 0.3) + 5.7p$

A) $9.6p + 6.0$

B) $-6.4p + 6.0$

C) $-6.4p + 5.4$

D) $9.6p + 5.4$

Answer: C

Write the phrase as a mathematical expression. Use x to represent the number. Combine like terms if possible.

451) Six times a number, added to the sum of the number and four

A) $10x$

B) $6x + 4$

C) $(x + 4) + 6x$; $7x + 4$

D) $7x$

Answer: C

452) A number multiplied by -3 , subtracted from the sum of 19 and five times the number

A) $3x - (19 + 5x)$; $-2x - 19$

B) $3x - 24$

C) $(19 + 5x) + (-3)x$; $19 + 2x$

D) $(19 + 5x) - (-3)x$; $19 + 8x$

Answer: D

453) A number multiplied by 5 , added to -5 , subtracted from 5 times the sum of 9 times the number and 2

A) $5x - 5 + 5(9 + 2x)$; $15x + 50$

B) $5(-5 + x) + 5(9 + 2x)$; $7x + 20$

C) $5(9x + 2) - [5x + (-5)]$; $40x + 15$

D) $5(-5 + x) + 5(9x + 2)$; $50x - 23$

Answer: C

454) 6 times a number added to -8 , added to 6 times the sum of 9 times the number and 7

A) $6(9x + 7) + [6x + (-8)]$; $60x + 34$

B) $6x - 8 + 6(9 + 7x)$; $48x + 60$

C) $6(-8 + x) + 6(9 + 7x)$; $13x + 6$

D) $6(-8 + x) + 6(9x + 7)$; $60x - 41$

Answer: A

455) Eight times a number added to -7 , subtracted from twice the sum of eight times the number and -6

A) $8(x - 7) - (2 + 8)(x - 6)$; $4 - 2x$

B) $(2 + 8)(x + -6) - 8(x - 7)$; $-4 + 2x$

C) $(-7 + 8x) - 2(8x - 6)$; $5 - 8x$

D) $2(8x - 6) - (-7 + 8x)$; $-5 + 8x$

Answer: D

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

456) What are some word phrases that mean addition?

Answer: Sum of, increased by, more than, the total of, plus, longer than, added to

457) What are some word phrases that mean multiplication?

Answer: Times, product of, fraction of the number

458) What are some word phrases that mean subtraction?

Answer: Less than, decreased by, take away, minus, subtract

459) Which is an example of a term with numerical coefficient 2 ?

(a) x^2 (b) $2x^7y$ (c) 2^2x^2 (d) $\frac{x}{2}$

Answer: (b)

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

460) Is the statement true or false?

$$5t^2 + 2t^2 = 7t^2$$

A) True

B) False

Answer: A

461) Which one of the following is an example of a pair of like terms?

A) $-8s^2x$, $6sx^2$

B) $8t$, $9w$

C) $9t^2$, $4t^3$

D) $4xw$, $8wx$

Answer: D

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

462) What property is used to combine $3y$ and $18y$ to get $21y$? Explain.

Answer: Distributive. In $3y + 18y$, the y has been distributed. Therefore, $3y + 18y = (3 + 18)y = 21y$

463) Write the expression $2m - (m + 12)$ using words.

Answer: Answers may vary. One possible answer: The difference between 2 times a number and the sum of the number and 12.

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

Determine whether the statement is true or false.

464) $7[6 + (6 - 2)] \geq 46$

A) True

B) False

Answer: A

465) $\left(\frac{1}{3}\right)^2 + \left(\frac{1}{8}\right)^2 = \left(\frac{1}{3} + \frac{1}{8}\right)^2$

A) False

B) True

Answer: A

Provide an appropriate response.

466) To which of the following sets does $-\frac{6}{7}$ belong: natural numbers, whole numbers, integers, rational numbers,

irrational numbers, real numbers?

A) Rational numbers, real numbers

B) Irrational numbers, natural numbers

C) Irrational numbers, real numbers

D) Rational numbers, natural numbers

Answer: A

467) Select the lesser number of 1 and $-|-7|$.

A) 1

B) $-|-7|$

Answer: B

Write the following phrase in symbols then simplify the expression.

468) The quotient of 3 and the sum of 26 and -8 .

A) $\frac{26 - 8}{3}$; 6

B) $\frac{3}{26 + (-8)}$; $\frac{1}{6}$

C) $\frac{3}{26 - (-8)}$; $\frac{3}{34}$

D) $3 + (26 - 8)$; 21

Answer: B

Provide an appropriate response.

469) Assume a is positive, b is negative, and c is positive for the expression

$$a \cdot b^3 \cdot c$$

Tell whether the value of the given expression is positive, negative or cannot be determined.

A) Positive

B) Negative

C) Cannot be determined

Answer: B

Perform the indicated operation.

470) $1 - (14 - 1) + (-24)$

A) 10

B) -36

C) -38

D) 40

Answer: B

471) $-3\frac{4}{5} + 6\frac{1}{7}$

A) $-2\frac{12}{35}$

B) $2\frac{12}{35}$

C) $-\frac{6}{35}$

D) $\frac{4}{35}$

Answer: B

472) $-13 - [-4 + (21 - 15)]$

A) 53

B) -3

C) -15

D) -45

Answer: C

473) $12^2 + 7 \cdot 9 - (10 + 2 \cdot 6)$

A) 1337

B) 209

C) 135

D) 185

Answer: D

474) $(-10) \cdot (-11) + 2 + (-4)^2$

A) 128

B) -92

C) 220

D) 88

Answer: A

475) $\frac{-3 - (-6 + 4)}{-7 - (-3)}$

A) $\frac{1}{10}$

B) $-\frac{1}{10}$

C) $\frac{13}{4}$

D) $\frac{1}{4}$

Answer: D

Evaluate the expression using the given values.

476) $3x - 9y^2$; $x = 3, y = -4$.

A) 153

B) -27

C) -135

D) -63

Answer: C

477) $\frac{3x + 7}{34 - 2y}$; $x = 7, y = 16$

A) 11

B) 28

C) 14

D) 33

Answer: C

Solve the problem.

- 478) The windchill temperature was -4°F , and the actual temperature was 13°F . Find the difference between the actual temperature and the windchill temperature.

A) 9°F B) 34°F C) 19°F D) 17°F

Answer: D

- 479) A baseball team won 4 of its games by 3 runs, lost 1 of its games by 5 runs, lost 1 game by 6 runs, and finished the season by winning its last 2 games by 4 runs. Express as a real number, how many more or fewer runs the did the team score versus their opponents in the 8 games.

A) 4 runs B) 9 runs C) -4 runs D) 21 runs

Answer: B

- 480) For 2009, the government of Country X collected \$2.4 trillion in revenues, but spent \$8.6 trillion. Write the government's budget deficit as a signed number.

A) $-\$6.2$ trillion B) $-\$11$ trillion C) $\$6.2$ trillion D) $\$11$ trillion

Answer: A

Match the property with the example of it.

- 481) Commutative property

A) $(6 + 7) + 4 - 6 = (7 + 6)$ B) $(6 + 7) + 4 = 6 + (7 + 4)$
C) $(6 + 7) + 0 = (6 + 7)$ D) $(6 + 7) + 4 = 6 + (6 + 7)$

Answer: D

- 482) Associative property

A) $(1 + 8) + 2 = (8 + 1) + 2$ B) $(1 + 8) + 0 = (1 + 8)$
C) $(1 + 8) + 2 = 1 + (8 + 1)$ D) $(1 + 8) + 2 = 1 + (8 + 2)$

Answer: D

- 483) Inverse property

A) $-\frac{5}{2} \left(-\frac{5}{2} \right) = 1$ B) $-\frac{5}{2} \left(-\frac{2}{5} \right) = 1$ C) $-\frac{5}{2} + \frac{2}{5} = 0$ D) $-\frac{5}{2} \left(-\frac{2}{5} \right) = 0$

Answer: B

- 484) Identity property

A) $3x \cdot 0 = 0$ B) $3x \cdot 0 = 3x$ C) $3x + 0 = 3x$ D) $3x - 3x = 0$

Answer: C

- 485) Distributive property

A) $-2(x + y) = 2x + 2y$ B) $-2(x + y) = 2(-x - y)$
C) $-2(x + y) = -2x - 2y$ D) $-2(x + y) = -2(y + x)$

Answer: C

Provide an appropriate response.

- 486) What property is used to clear parentheses and write $7(x + 4)$ as $7x + 28$?

A) Identity property B) Commutative property
C) Associative property D) Distributive property

Answer: D

Evaluate.

487) $-5[8 + (-9)]$

A) -85

B) -49

C) 5

D) -5

Answer: C

Simplify by combining like terms.

488) $6x + 2x - 2x + x + 10x$

A) $16x$

B) 18

C) -18

D) $17x$

Answer: D

489) $8(5x + 7) - (x - 5) + 5(2x - 5)$

A) $49x + 36$

B) $51x + 26$

C) $49x + 26$

D) $50x + 36$

Answer: A