

Name \_\_\_\_\_

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

- 1) Identify the numerator of the fraction.

$$\frac{22}{41}$$

Answer: 22

- 2) Identify the denominator of the fraction.

$$\frac{13}{49}$$

Answer: 49

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

- 3) Which fraction is a proper fraction?

A)  $\frac{20}{3}$

B)  $\frac{4}{16}$

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

D)  $-2\frac{1}{3}$

Answer: B

- 4) Which fraction is an improper fraction?

A)  $\frac{1}{7}$

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

C)  $-\frac{7}{14}$

D)  $-\frac{22}{7}$

Answer: D

- 5) Write a proper or improper fraction associated with the shaded region of the figure.



A)  $\frac{4}{9}$

B)  $\frac{6}{4}$

C)  $1\frac{1}{3}$

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

Answer: D

- 6) Write a proper or improper fraction associated with the shaded region of the figure.



A)  $\frac{6}{8}$

B)  $\frac{8}{6}$

C)  $\frac{8}{2}$

D)  $\frac{2}{8}$

Answer: A

7) Which number is a prime number?

A) 21

B) 17

C) 27

D) 18

Answer: B

8) Which number is a composite number?

A) 37

B) 3

C) 18

D) 17

Answer: C

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

9) Write the number as a product of prime factors.

72

Answer:  $2 \times 2 \times 2 \times 3 \times 3$

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

10) Write the number as a product of prime factors.

98

A)  $3 \times 5 \times 7$

B)  $2 \times 7 \times 7$

C)  $2 \times 49$

D)  $9 \times 8$

Answer: B

11) Which fraction is in lowest terms?

A)  $\frac{8}{20}$

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

C)  $\frac{20}{8}$

D)  $\frac{60}{40}$

Answer: B

12) Which fraction is not in lowest terms?

A)  $\frac{14}{35}$

B)  $\frac{23}{7}$

C)  $\frac{7}{23}$

D)  $\frac{3}{49}$

Answer: A

13) Simplify the fraction to lowest terms.

$\frac{14}{21}$

A)  $\frac{14}{21}$

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

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

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

Answer: B

14) Simplify the fraction to lowest terms.

$$\frac{21}{15}$$

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

B)  $\frac{5}{7}$

C)  $\frac{7}{5}$  or  $1\frac{2}{5}$

D)  $\frac{21}{15}$

Answer: C

15) Simplify the fraction to lowest terms.

$$\frac{60}{315}$$

A)  $\frac{8}{42}$

B)  $\frac{5}{24}$

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

D)  $\frac{10}{52}$

Answer: C

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

16) Simplify the fraction to lowest terms.

$$\frac{72}{40}$$

Answer:  $\frac{9}{5}$

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

17) Simplify the fraction to lowest terms.

$$\frac{80}{60}$$

A)  $\frac{80}{60}$

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

C)  $\frac{4}{3}$  or  $1\frac{1}{3}$

D)  $\frac{1}{3}$

Answer: C

18) Multiply the fractions.

$$\frac{11}{30} \times \frac{19}{3}$$

A)  $\frac{33}{570}$

B)  $\frac{209}{3}$

C)  $\frac{209}{90}$

D)  $\frac{30}{33}$

Answer: C

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

19) Multiply the fractions.

$$\frac{13}{3} \times \frac{5}{13}$$

Answer:  $\frac{5}{3}$

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

20) Multiply the fractions.

$$\frac{20}{3} \times \frac{18}{25}$$

A)  $\frac{38}{28}$

B)  $\frac{554}{75}$

C)  $\frac{250}{57}$

D)  $\frac{24}{5}$

Answer: D

21) Multiply the fractions.

$$11 \times \frac{5}{31}$$

A)  $\frac{55}{341}$

B)  $\frac{1705}{31}$

C)  $\frac{5}{341}$

D)  $\frac{55}{31}$

Answer: D

22) Multiply the fractions.

$$\frac{23}{24} \times 4$$

A)  $\frac{92}{96}$

B)  $\frac{2208}{24}$

C)  $\frac{23}{96}$

D)  $\frac{23}{6}$

Answer: D

23) Multiply the fractions.

$$\frac{15}{4} \times \frac{35}{9} \times \frac{6}{35}$$

A)  $\frac{21}{10}$

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

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

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

Answer: D

- 24) At the beginning of the 2002 season,  $\frac{3}{5}$  of the players on one Major League Baseball team had a salary of over 1 million dollars per year. There are 25 players on a major league roster. How many were making over a million dollars?

A) 20                                      B) 17                                      C) 15                                      D) 12

Answer: C

- 25) A national safety organization has estimated that  $\frac{1}{5}$  of all drivers on the road after midnight on weekends is legally intoxicated. If there are 290 drivers on a stretch of highway during this time period, how many would this organization estimate to be driving while intoxicated?

A) 53                                      B) 58                                      C) 174                                      D) 116

Answer: B

- 26) Which pair of numbers are reciprocals?

A)  $\frac{4}{8}$  and  $\frac{1}{2}$                                       B)  $\frac{43}{5}$  and  $-\frac{5}{43}$                                       C)  $\frac{43}{5}$  and  $-\frac{43}{5}$                                       D)  $\frac{43}{5}$  and  $\frac{5}{43}$

Answer: D

- 27) Divide the fractions.

$$\frac{11}{6} \div \frac{7}{3}$$

A)  $\frac{77}{3}$                                       B)  $\frac{77}{18}$                                       C)  $\frac{18}{9}$                                       D)  $\frac{11}{14}$

Answer: D

- 28) Divide the fractions.

$$\frac{3}{35} \div \frac{2}{21}$$

A)  $\frac{6}{735}$                                       B)  $\frac{10}{9}$                                       C)  $\frac{9}{5}$                                       D)  $\frac{9}{10}$

Answer: D

- 29) Divide the fractions.

$$6 \div \frac{5}{49}$$

A)  $\frac{30}{49}$                                       B)  $\frac{30}{294}$                                       C)  $\frac{294}{5}$                                       D)  $\frac{1470}{49}$

Answer: C

- 30) At a super bowl party,  $\frac{2}{3}$  of the pizza remains after the game, to be split equally among 4 people. What share of the original pizza will each get?

A)  $\frac{8}{3}$                                       B)  $\frac{1}{10}$                                       C)  $\frac{3}{8}$                                       D)  $\frac{1}{6}$

Answer: D

31) Add the fractions.

$$\frac{31}{11} + \frac{29}{11}$$

A)  $\frac{30}{11}$

B)  $\frac{60}{11}$

C)  $\frac{2}{11}$

D)  $\frac{899}{121}$

Answer: B

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

32) Subtract the fractions.

$$\frac{13}{20} - \frac{3}{20}$$

Answer:  $\frac{1}{2}$

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

33) Find the least common multiple for the numbers.

9, 15

A) 135

B) 45

C) 3

D) 15

Answer: B

34) Find the least common multiple for the numbers.

8, 18

A) 72

B) 6

C) 48

D) 8

Answer: A

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

35) Find the least common multiple for the numbers.

8, 20, 45

Answer: 360

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

36) Add the fractions.

$$\frac{7}{6} + \frac{3}{14}$$

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

B)  $\frac{5}{21}$

C)  $\frac{29}{21}$

D)  $\frac{20}{21}$

Answer: C

37) Subtract the fractions.

$$\frac{17}{6} - \frac{3}{20}$$

A)  $\frac{141}{120}$

B)  $\frac{7}{10}$

C)  $\frac{161}{60}$

D)  $-1$

Answer: C

38) Add the fractions.

$$\frac{1}{6} + \frac{2}{15}$$

A)  $\frac{3}{21}$

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

C)  $\frac{1}{45}$

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

Answer: B

39) Subtract the fractions.

$$\frac{5}{4} - \frac{23}{20}$$

A)  $-\frac{9}{40}$

B)  $\frac{18}{16}$

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

D)  $-\frac{9}{10}$

Answer: C

40) Perform the indicated operations.

$$\frac{3}{5} + \frac{21}{10} - \frac{1}{6}$$

A)  $\frac{79}{30}$

B)  $\frac{23}{9}$

C)  $\frac{38}{15}$

D)  $\frac{151}{300}$

Answer: C

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

41) Perform the indicated operations.

$$\frac{5}{3} + \frac{2}{9} - \frac{1}{6} - \frac{1}{10}$$

Answer:  $\frac{73}{45}$

42) John reads  $\frac{1}{5}$  of a book on Monday, then reads  $\frac{1}{3}$  more on Tuesday. What fraction of the book did he read in the two days combined?

Answer:  $\frac{8}{15}$

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

- 43) John began working out and found that he lost approximately  $\frac{3}{7}$  in. off his waistline every 2 months.

How many inches would he lose around his waist in 8 months?

- A)  $\frac{3}{7}$                       B)  $\frac{6}{7}$                       C)  $\frac{24}{7}$                       D)  $\frac{12}{7}$

Answer: D

- 44) Multiply the numbers.

$$5 \times 6\frac{2}{3}$$

- A)  $30\frac{2}{3}$                       B)  $33\frac{1}{3}$                       C)  $10\frac{2}{3}$                       D)  $26\frac{2}{3}$

Answer: B

- 45) Divide the mixed numbers.

$$4\frac{5}{8} \div 3\frac{1}{2}$$

- A)  $2\frac{3}{8}$                       B)  $1\frac{9}{28}$                       C)  $4\frac{1}{4}$                       D)  $1\frac{5}{16}$

Answer: B

- 46) Add the mixed numbers.

$$8\frac{1}{3} + 12\frac{1}{2}$$

- A)  $\frac{101}{5}$                       B)  $\frac{125}{6}$                       C)  $\frac{115}{6}$                       D)  $\frac{26}{3}$

Answer: B

- 47) Subtract the mixed numbers.

$$3\frac{3}{4} - 1\frac{1}{2}$$

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

Answer: B



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

- 48) The plans for building a deck require Shelly to cut a board that's  $7\frac{3}{4}$  feet long into 3 equal pieces.

How long should each piece be?

Answer:  $2\frac{7}{12}$  feet

- 49) A painting company estimates that it will take  $4\frac{1}{2}$  days to paint one building, and  $6\frac{3}{4}$  days to paint the one next door. How many days will it take to paint both?

Answer:  $11\frac{1}{4}$  days

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

- 50) Which of the following expressions is a variable?

A) 6.7

B) -7

C)  $|18.9|$

D)  $x$

Answer: D

- 51) Which of the following expressions is not a variable?

A)  $|x + 20.4|$

B)  $Y$

C) -3

D)  $x$

Answer: C

- 52) Which of the following is an algebraic expression?

A)  $y$

B)  $-13z + 9$

C) 43

D) all of the above

Answer: D

- 53) Evaluate the expression for the given substitution.

$6z - 14$ ; when  $z = 5$

A) 114

B) -54

C) 44

D) 16

Answer: D

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

- 54) Evaluate the expression for the given substitution.

$9 - 12t$ ; when  $t = \frac{3}{4}$

Answer: -0

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

55) Evaluate the expression for the given substitution.

$$8 + 5y; \text{ when } y = -2.3$$

A) 19.5

B) -2

C) -29.9

D) -3.5

Answer: D

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

56) Evaluate the expression for the given substitution.

$$\frac{x}{2} + 4; \text{ when } x = \frac{8}{3}$$

Answer:  $\frac{16}{3}$

57) Aly is trying to limit her total calorie intake for breakfast and lunch to 890 calories. The number of calories that she can consume for lunch is given by the expression  $890 - b$ , where  $b$  is the number of calories consumed for breakfast. Determine the number of calories allowed for lunch assuming that s the following number of calories at breakfast:

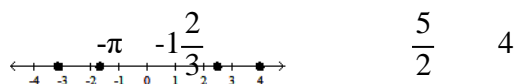
a. 445 calories   b. 515 calories   c. 355 calories

Answer: **a.** 445 calories; **b.** 375 calories; **c.** 535 calories

58) Plot the numbers on a real number line.

$$\frac{5}{2}, 4, -\pi, -1\frac{2}{3}$$

Answer:



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

59) Which of the following is an irrational number?

A)  $5.\bar{3}$

B)  $\frac{17}{3}$

C) -1.82

D)  $\sqrt{11}$

Answer: D

60) Which of the following is an irrational number?

A)  $\frac{\sqrt{3}}{2}$

B)  $\sqrt{25}$

C) -7.829

D)  $4.5\overline{71}$

Answer: A

61) Which is a false statement?

- A) All natural numbers are rational numbers.
- C) All irrational numbers are real numbers.

- B) All integers are whole numbers.
- D) All rational numbers are real numbers.

Answer: B

62) To which set of numbers does -4 not belong?

- A) Rational numbers
- C) Real numbers

- B) Integers
- D) Natural numbers

Answer: D

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

63) Let  $A = \left\{ -\frac{3}{2}, \sqrt{3}, -9, 0.\bar{1}, \sqrt{11}, 8 \right\}$ . List all of the rational numbers in set A.

Answer:  $-\frac{3}{2}, -9, 0.\bar{1}, 8$

64) Let  $A = \left\{ -\frac{7}{3}, \sqrt{11}, -9, 0.\bar{4}, \sqrt{8}, 1 \right\}$ . List all of the natural numbers in set A.

Answer: 1

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

65) Write the numbers in order from least to greatest.

$$\frac{11}{8}, \frac{9}{4}, 2.7, -\frac{2}{3}, -0.9$$

A)  $-\frac{2}{3}, -0.9, \frac{11}{8}, \frac{9}{4}, 2.7$

B)  $-\frac{2}{3}, -0.9, 2.7, \frac{9}{4}, \frac{11}{8}$

C)  $-0.9, -\frac{2}{3}, \frac{9}{4}, \frac{11}{8}, 2.7$

D)  $-0.9, -\frac{2}{3}, \frac{11}{8}, \frac{9}{4}, 2.7$

Answer: D

66) Find the opposite of 11.4.

A) -11.4

B)  $-(-11.4)$

C)  $-\frac{1}{11.4}$

D)  $\frac{1}{11.4}$

Answer: A

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

67) Find the opposite of -15.4.

Answer: 15.4

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

68) Find the opposite of  $-\frac{5}{42}$ .

A)  $\frac{42}{5}$

B)  $\frac{5}{42}$

C)  $-\frac{42}{5}$

D)  $-\frac{5}{42}$

Answer: B

69) Simplify  $-(-41)$ .

A) 41

B)  $\frac{1}{41}$

C) -41

D)  $-\frac{1}{41}$

Answer: A

70) Simplify.

$|-7.5|$

A) 7.5

B)  $\frac{1}{7.5}$

C)  $-\frac{1}{7.5}$

D) -7.5

Answer: A

71) Simplify.

$\left|-\frac{3}{4}\right|$

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

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

C)  $-\frac{4}{3}$

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

Answer: D

72) Simplify.

$|38.5|$

A) 38.5

B)  $\frac{1}{38.5}$

C)  $-\frac{1}{38.5}$

D) -38.5

Answer: A

73) Simplify.

$-|42|$

A) -42

B)  $\frac{1}{42}$

C) 42

D)  $-\frac{1}{42}$

Answer: A

74) Simplify.

$$-\left|-\frac{3}{4}\right|$$

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

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

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

D)  $-\frac{3}{4}$

Answer: D

75) Which statement is false?

A)  $-8 < -7$

B)  $-8 > -7$

C)  $8 > 7$

D)  $-7 > -8$

Answer: B

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

76) Determine if the statement is true or false.

$$-\frac{1}{6} \geq -\frac{6}{7}$$

Answer: ☒ True ☐ False

77) Determine if the statement is true or false.

$$-|-9| = |9|$$

Answer: ☐ True ☒ False

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

78) Which statement is false?

A)  $|-12| \leq |12|$

B)  $|-12| < |12|$

C)  $|-12| \geq |12|$

D)  $|-12| = |12|$

Answer: B

79) Write the product using an exponent.

$$27 \cdot 27 \cdot 27 \cdot 27 \cdot 27 \cdot 27$$

A)  $6^{27}$

B)  $6 \cdot 27$

C)  $27^6$

D)  $6^6$

Answer: C

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

80) Write the product using exponents.

$$12 \cdot a \cdot a \cdot a \cdot b \cdot b \cdot b \cdot b$$

Answer:  $12a^3b^4$

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

81) Write the expression in expanded form using the definition of an exponent.

$$(3y)^4$$

A)  $3 \cdot 3 \cdot 3 \cdot 3 \cdot y$

B)  $3y \cdot 3y \cdot 3y \cdot 3y$

C)  $3 \cdot y \cdot y \cdot y \cdot y$

D)  $3y \cdot 4$

Answer: B

82) Write the expression in expanded form using the definition of an exponent.

$$2m^3n$$

A)  $2 \cdot 2 \cdot 2 \cdot m \cdot m \cdot m \cdot n$

B)  $2 \cdot m \cdot m \cdot m \cdot n$

C)  $2 \cdot m \cdot m \cdot m \cdot n \cdot n \cdot n$

D)  $2 \cdot m \cdot n \cdot 3$

Answer: B

83) Simplify the expression.

$$8^2$$

A) 256

B) 16

C) 10

D) 64

Answer: D

84) Simplify the expression.

$$\left(\frac{2}{3}\right)^4$$

A)  $\frac{16}{81}$

B)  $\frac{16}{3}$

C)  $\frac{8}{12}$

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

Answer: A

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

85) Simplify the expression.

$$(0.9)^2$$

Answer: 0.81

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

86) Simplify the square root.

$$\sqrt{16}$$

A) 5

B) 6

C) 4

D) 8

Answer: C

87) Simplify the square root.

$$\sqrt{169}$$

A)  $\frac{169}{2}$

B) 11

C) 14

D) 13

Answer: D

88) Simplify the square root.

$$\sqrt{\frac{81}{100}}$$

A)  $\frac{9}{100}$

B)  $\frac{81}{100}$

C)  $\frac{9}{10}$

D)  $\frac{81}{10}$

Answer: C

89) Use the order of operations to simplify the expression.

$$-2 \cdot 5 - 3 \cdot 3$$

A) -19

B) -12

C) 1

D) 8

Answer: A

90) Use the order of operations to simplify the expression.

$$6 + 3 \div 3 \cdot 2 + 1$$

A) 21

B) 7

C) 9

D) 15

Answer: C

91) Use the order of operations to simplify the expression.

$$4(4 - 5)^2 + 6^2$$

A) 148

B) 0

C) 40

D) 52

Answer: C

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

92) Use the order of operations to simplify the expression.

$$\frac{2}{3} \cdot \frac{1}{4} - 26$$

Answer:  $-\frac{155}{6}$

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

93) Use the order of operations to simplify the expression.

$$\frac{3}{4} + |7 - 12| \cdot 3$$

A)  $\frac{69}{4}$

B)  $-\frac{57}{4}$

C)  $-\frac{51}{4}$

D)  $\frac{63}{4}$

Answer: D

94) Simplify:  $3\sqrt{82 - 57} + |2 - 7| + 2 \cdot (-4)$

A) 22

B) -48

C) 2

D) 12

Answer: D

95) Use the order of operations to simplify the expression.

$$\frac{-3 \cdot 3 + 15}{(15 - 13)^2}$$

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

B)  $-\frac{27}{2}$

C) -3

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

Answer: D

96) Use the order of operations to simplify the expression.

$$100 \div 10 \cdot 2 + (4^2 - |-4|)$$

A) 25

B) 40

C) 17

D) 32

Answer: D

97) Use the order of operations to simplify the expression.

$$\frac{17 - 5(2 \cdot 5 - 16)}{14 - 2(5 \cdot 3 - 10)}$$

A)  $\frac{17}{14}$

B)  $\frac{49}{26}$

C)  $\frac{47}{4}$

D)  $\frac{127}{84}$

Answer: C

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

98) A person's debt-to-income ratio is the sum of all monthly installment payments (credit cards, loans, etc.) divided by monthly take-home pay. This number is often considered when one is applying for a loan. Each month, Monica makes credit card payments of \$50 and \$28, a student loan payment of \$165, and a payment for furniture of \$63. Her monthly take-home pay is \$1700.

**a.** Determine Monica's debt-to-income ratio.

**b.** To obtain a car loan, Monica's debt-to-income ratio must be less than 0.20. Does she meet this criteria?

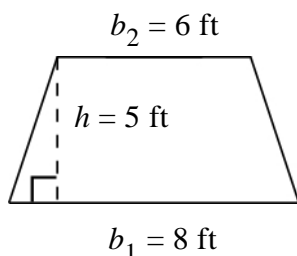
Answer: **a.** 0.18

**b.** Yes,  $0.18 < 0.20$



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

- 99) The area of a trapezoid is given by  $A = \frac{1}{2}(b_1 + b_2)h$ , where  $b_1$  and  $b_2$  are the lengths of the two parallel sides and  $h$  is the height. A window is in the shape of a trapezoid. Find the area of the trapezoid with dimensions shown in the figure.



- A)  $50 \text{ ft}^2$                       B)  $7 \text{ ft}^2$                       C)  $35 \text{ ft}^2$                       D)  $55 \text{ ft}^2$

Answer: C

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

- 100) Translate the phrase into an algebraic expression.  
The sum of 111 and  $x$

Answer:  $111 + x$

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

- 101) Translate the phrase into an algebraic expression.  
The quotient of -188 and the absolute value of  $y$

- A)  $\left| \frac{-188}{y} \right|$                       B)  $\frac{|y|}{-188}$                       C)  $\frac{|-188|}{y}$                       D)  $\frac{-188}{|y|}$

Answer: D

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

- 102) Translate the phrase into an algebraic expression.  
The product of five and the difference of eleven and  $t$

Answer:  $5(11 - t)$

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

- 103) Translate the phrase into an algebraic expression. Then evaluate the expression for  $z = 9$ .  
The absolute value of the difference of  $z$  and 15

- A)  $|z| - 15$ ; 6                      B)  $|z - 15|$ ; 6                      C)  $|z| - 15$ ; -6                      D)  $|z - 15|$ ; -6

Answer: B

104) Translate the algebraic expression into an English phrase:

$$24 - n^2$$

A) The quotient of 24 and the square of  $n$

B) The difference of 24 and the square of  $n$

C) The square of the difference of 24 and  $n$

D) The difference of the square of  $n$  and 24

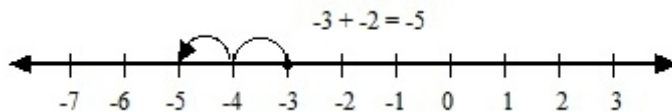
Answer: B

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

105) Use a number line to add the numbers.

$$-3 + (-2)$$

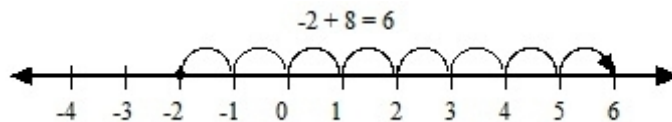
Answer:



106) Use a number line to add the numbers.

$$-2 + 8$$

Answer:



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

107) Add the numbers.

$$-9 + 15$$

A) -6

B) 24

C) -24

D) 6

Answer: D

108) Add the numbers.

$$-12 + (-8)$$

A) -4

B) 20

C) 4

D) -20

Answer: D

109) Add the numbers.

$$10 + (-10)$$

A) -100

B) 0

C) -20

D) 20

Answer: B

110) Add the integers.

$$13 + (-2)$$

A) -11

B) -15

C) 15

D) 11

Answer: D

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

111) Add the integers.

$$-10 + (-5) + 12$$

Answer: -3

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

112) Add the integers.

$$-2 + (-4) + (-8) + 9 + 8$$

A) -15

B) 31

C) -31

D) 3

Answer: D

113) Add the numbers.

$$-\frac{2}{9} + \left(-\frac{7}{18}\right)$$

A)  $-\frac{11}{18}$

B) 0

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

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

Answer: A

114) Add the numbers.

$$-\frac{4}{5} + \left(-\frac{1}{25}\right) + 3$$

A)  $\frac{56}{25}$

B)  $\frac{54}{25}$

C)  $-\frac{18}{25}$

D)  $-\frac{16}{25}$

Answer: B

115) Evaluate the expression below for  $x = -4$ ,  $y = -3$ , and  $z = 49$ .

$$x + y + \sqrt{z}$$

A) -14

B) 0

C) -8

D) 14

Answer: B

116) Evaluate the expression below for  $x = 8$ ,  $y = -3$ , and  $z = -8$ .

$$x + y + |z|$$

A) 19

B) -3

C) 3

D) 13

Answer: D

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

117) Translate the phrase into a mathematical expression, then simplify the result.

The sum of 26, -7, -20, and -16

Answer:  $26 + (-7) + (-20) + (-16)$ ; -17

118) Translate the phrase into a mathematical expression, then simplify the result.

Seven-eighths added to negative three-fourths

Answer:  $\frac{7}{8} + \left(-\frac{3}{4}\right); \frac{1}{8}$

119) Translate the phrase into a mathematical expression, then simplify the result.

Eight more than the sum of -5 and -7

Answer:  $[-5 + (-7)] + 8; -4$

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

120) A college sociology course is attended by 32 students on the first day. On the second day, 2 students that overslept the day before come to class. On the third day, 4 students drop the class. Write a mathematical expression to describe the attendance of this class, then simplify the result.

A)  $32 + 2 + 4 = 38$

B)  $32 + (-2) + (-4) = 26$

C)  $32 + (-2) + 4 = 34$

D)  $32 + 2 + (-4) = 30$

Answer: D

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

121) Maureen had \$831 in her savings account at the beginning of the month. She withdrew \$40 on the third, deposited a \$178 paycheck on the sixth, and withdrew \$20 on the tenth. Write a mathematical expression that describes her account balance, then simplify the result.

Answer:  $831 + (-40) + 178 + (-20) = 949$

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

122) The value of one share of Cuzco, Inc., stock was \$29 on October 1. Over the next three days, it lost \$1.10, lost \$0.75, and gained \$0.65. Write a mathematical expression that describes the value of the stock, then simplify the result.

A)  $29 + 1.10 + 0.75 + 0.65 = 31.50$

B)  $29 + (-1.10) + (-0.75) + 0.65 = 27.80$

C)  $29 + 1.10 + (-0.75) + (-0.65) = 28.70$

D)  $29 + (-1.10) + (-0.75) + (-0.65) = 26.50$

Answer: B

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

123) Fill in the blank to make the statement correct.

$-32 - 10 = -32 + \underline{\hspace{1cm}}$

Answer: -10

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

124) Subtract the numbers.

$18 - 20$

A) 38

B) -360

C) 2

D) -2

Answer: D

125) Subtract the numbers.

$$-16 - 29$$

A) 13

B) 464

C) -45

D) 45

Answer: C

126) Subtract the numbers.

$$-20 - (-25)$$

A) -45

B) 45

C) 5

D) 500

Answer: C

127) Subtract the numbers.

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

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

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

C)  $\frac{1}{9}$

D)  $\frac{2}{27}$

Answer: B

128) Subtract the numbers.

$$-12.8 - 10.5$$

A) -23.3

B) 23.3

C) 2.3

D) -2.3

Answer: A

129) Translate the English phrase into an algebraic expression, then evaluate the expression.

Five subtracted from twenty-two fifths

A)  $\frac{22}{5} - 5 = -\frac{3}{5}$

B)  $\frac{5 - 22}{5} = -\frac{17}{5}$

C)  $5 - \frac{22}{5} = \frac{3}{5}$

D)  $\frac{22 - 5}{5} = \frac{17}{5}$

Answer: A

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

130) Translate the English phrase into an algebraic expression, then evaluate the expression.

The difference of -5 and -14

Answer:  $-5 - (-14)$ ; 9

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

131) Translate the English phrase into an algebraic expression, then evaluate the expression.

Eight less than negative nineteen

A)  $8 - (-19) = 27$

B)  $-19 - (-8) = -11$

C)  $-19 - 8 = -27$

D)  $-8 - (-19) = 11$

Answer: C

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

- 132) Joe Fabeets compiles all of his financial information and finds that he is in debt by \$6000. (In other words, his net worth is -\$6000). His brother Mel Fabeets has a positive net worth of \$7000. Find the difference in their net worths.

Answer: \$13,000

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

- 133) In one 24-hour period in Toledo, Ohio, the high temperature was 29 degrees and the low temperature was -7 degrees. Find the temperature range for that day (i.e., the difference between the high and low temperatures).

A) -22 degrees                      B) -36 degrees                      C) 36 degrees                      D) 22 degrees

Answer: C

- 134) Tiger Woods won the 2000 U.S. Open golf tournament with a score of 12 strokes under par (-12). His closest competitor, Ernie Els, finished 3 strokes over par (+3). What was the margin of victory?

A) 9 strokes                      B) 12 strokes                      C) 18 strokes                      D) 15 strokes

Answer: D

- 135) Perform the indicated operations.

$$13 + 27 - 2 - (-6) + 30$$

A) 62                      B) 66                      C) 74                      D) 78

Answer: C

- 136) Perform the indicated operations.

$$-13 + (-23) + (-18) - 11$$

A) -19                      B) 17                      C) -65                      D) 3

Answer: C

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

- 137) Perform the indicated operations.

$$9 - (23 - 19) - (-19)$$

Answer: 24

- 138) Perform the indicated operations.

$$2 + \left[ -\frac{1}{2} \right] + \frac{1}{4} - 4$$

Answer:  $-\frac{9}{4}$

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

139) Perform the indicated operations.

$$-2 - \sqrt{6 - (-10)} + 4$$

A) 6

C) -2

B) -10

D) The expression is undefined.

Answer: C

140) Perform the indicated operations.

$$\frac{7 - 8 + 3}{8 + (-6)}$$

A) -1

B)  $\frac{1}{7}$

C)  $-\frac{2}{7}$

D) 1

Answer: D

141) Evaluate the expression below for  $a = -5$ ,  $b = -7$ , and  $c = -2$ .

$$(a + b) - c$$

A) -10

B) -14

C) 0

D) 4

Answer: A

142) Multiply the real numbers.

$$9 \cdot (-13)$$

A) -4

B) 117

C) -117

D) -113

Answer: C

143) Multiply the real numbers.

$$-15 \cdot 3$$

A) -41

B) 45

C) -12

D) -45

Answer: D

144) Multiply the real numbers.

$$-7 \cdot (-13)$$

A) 91

B) -20

C) -91

D) -87

Answer: A

145) Multiply the real numbers.

$$\frac{3}{5} \cdot \left(-\frac{20}{3}\right)$$

A)  $\frac{60}{15}$

B)  $-\frac{17}{15}$

C)  $-\frac{9}{100}$

D) -4

Answer: D

146) Simplify the exponential expression.

$$(-9)^2$$

A) -18

B) 18

C) -81

D) 81

Answer: D

147) Simplify the exponential expression.

$$(-2)^6$$

A) -12

B) 64

C) -64

D) 32

Answer: B

148) Simplify the exponential expression.

$$-6^2$$

A) -36

B) 36

C) 12

D) -12

Answer: A

149) Simplify the exponential expression.

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

A)  $-\frac{4}{3}$

B)  $\frac{1}{3}$

C)  $\frac{1}{81}$

D)  $-\frac{1}{81}$

Answer: D

150) Simplify the exponential expression.

$$(-0.5)^2$$

A) -0.25

B) 0.25

C) -1

D) 1

Answer: B

151) Divide the real numbers.

$$\frac{56}{-7}$$

A) 49

B) -9

C) 8

D) -8

Answer: D

152) Divide the real numbers.

$$\frac{-10}{2}$$

A) -8

B) -4

C) -5

D) 5

Answer: C



153) Divide the real numbers.

$$\frac{-15}{-3}$$

A) 45

B) -5

C) 3

D) 5

Answer: D

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

154) Show how multiplication can be used to check the division problem.

$$\frac{54}{-9} = -6$$

Answer:  $(-6) \cdot (-9) = 54$

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

155) Show how multiplication can be used to check the division problem.

$$-18 \div (-6) = 3$$

A)  $3 \times (-6) = -18$

B)  $-3 \times (-6) = 18$

C)  $3 \times 6 = 18$

D)  $-3 \times 6 = -18$

Answer: A

156) Divide the real numbers.

$$-40 \div 8$$

A) -5

B) 5

C) -4

D) -32

Answer: A

157) Divide the real numbers.

$$-21 \div (-3)$$

A) -7

B) 3

C) 7

D) 63

Answer: C

158) Divide the real numbers.

$$38 \div 0$$

A) 1

B) undefined

C) 38

D) 0

Answer: B

159) Divide the real numbers.

$$\frac{0}{79}$$

A) undefined

B) 79

C) 1

D) 0

Answer: D

160) Divide the real numbers.

$$\frac{-7.83}{-2.9}$$

A) -2.7

B) -27

C) 27

D) 2.7

Answer: D

161) Divide the real numbers.

$$\frac{1}{7} \div (-3)$$

A) -21

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

C)  $\frac{1}{21}$

D)  $-\frac{1}{21}$

Answer: D

162) Perform the operations.

$$(-2)(-2)(-3)$$

A) -14

B) 12

C) -11

D) -12

Answer: D

163) Perform the operations.

$$200 \div 5 \div 8$$

A) 5

B) 6

C) 320

D) 48

Answer: A

164) Perform the operations.

$$\left(-\frac{21}{8}\right) \cdot \left(-\frac{4}{9}\right) \cdot \left(1\frac{5}{14}\right)$$

A)  $-\frac{5}{12}$

B)  $\frac{19}{12}$

C)  $-\frac{19}{12}$

D)  $\frac{5}{12}$

Answer: B

165) Perform the operations.

$$3 \cdot (-5) - 3 \cdot (-8)$$

A) 9

B) 144

C) 192

D) -39

Answer: A

166) Perform the operations.

$$\frac{5 \cdot (-6) \div 2 + (4 - 7)^3}{2 \cdot (-1)}$$

A) -42

B) 7

C) -18

D) 21

Answer: D

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

167) Perform the operations.

$$-(2 - 10)^2 \cdot 3 - 10 \cdot 2$$

Answer: -212

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

168) Perform the operations.

$$\frac{-9 + 6}{4 \cdot (-3) + 12}$$

- A) undefined      B)  $-\frac{1}{8}$       C)  $-\frac{1}{4}$       D) 0

Answer: A

169) Perform the operations.

$$\frac{6 - 3[-5 - (3 - 6)^2]}{-2|4 - 7|}$$

- A) 1      B) -1      C) -8      D) 8

Answer: C

170) Translate the English phrase into an algebraic expression, then evaluate the expression.

The number -0.3 plus the quantity 3 times -0.42

- A)  $(-0.3 + 3)(-0.42)$ ; -1.134      B)  $-0.3 + 3(-0.42)$ ; -1.56  
C)  $(-0.3 + 3)(-0.42)$ ; -1.56      D)  $-0.3 + 3(-0.42)$ ; -1.134

Answer: B

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

171) For 5 weeks, Jim pays \$2 a week for lottery tickets. Jim has one winning ticket for \$5. Write an expression that describes his net gain or loss. How much money has Jim won or lost?

Answer:  $5(-2) + 5 = -5$ ; loss of \$5

172) Valerie trades stocks each day and analyzes her results at the end of the week. The first day of the week she had a profit of \$700. The next two days she had a loss of \$350 each day and the last two days she had a loss of \$150 each day. Write an expression that describes Valerie's profit or loss for the week. Interpret the result.

Answer:  $700 + 2(-350) + 2(-150) = -300$ ; Valerie lost \$300 for the week.

173) Use the commutative property of addition to rewrite the expression.

$$12 + 7y$$

Answer:  $7y + 12$

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

174) Use the commutative property of multiplication to rewrite the expression.

$$z(-10)$$

A)  $-10z$

B)  $10z$

C)  $(-z)(10)$

D)  $(z)(-10)$

Answer: A

175) Which of the following is not true for every real number  $a$  and  $b$ ?

A)  $a(b + c) = ab + ac$

B)  $a - b = b - a$

C)  $a + b = b + a$

D)  $a \cdot b = b \cdot a$

Answer: B

176) Which property is illustrated by the following statement?

$$5 \cdot \frac{3}{8} = \frac{3}{8} \cdot 5$$

A) Distributive property

B) Commutative property of multiplication

C) Commutative property of addition

D) Associative property of multiplication

Answer: B

177) Which property is illustrated by the following statement?

$$(-36) + 7 = 7 + (-36)$$

A) Commutative property of addition

B) Distributive property

C) Commutative property of multiplication

D) Associative property of multiplication

Answer: A

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

178) Use the associative property of addition to rewrite the expression.

$$(50 + 12x) + 3$$

Answer:  $50 + (12x + 3)$

179) Use the associative property of multiplication to rewrite the expression.

$$7(3t)$$

Answer:  $(7 \cdot 3)t$

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

180) Use the associative property of multiplication to rewrite the expression, then simplify.

$$\frac{5}{9} \left( \frac{18}{5} y \right)$$

A)  $2 + \frac{5}{9}y$

B)  $2y$

C)  $\left( \frac{18}{5} y \right) \frac{5}{9}$

D)  $\frac{25}{162}y$

Answer: B

181) Which property is illustrated by the following statement?

$$(7 + 42) + (-14) = 7 + (42 + (-14))$$

- A) Commutative property of addition
- C) Distributive property

- B) Associative property of addition
- D) Commutative property of multiplication

Answer: B

182) What is the multiplicative inverse of 56?

A)  $\frac{1}{56}$

B) -56

C) 1

D) 0

Answer: A

183) What is the additive inverse of 3?

A) -3

B)  $\frac{1}{3}$

C) 1

D) 0

Answer: A

184) Which property is illustrated by the following statement?

$$-32 \cdot \frac{1}{-32} = 1$$

- A) Associative property of multiplication
- C) Commutative property of addition

- B) Inverse property of multiplication
- D) Identity property of addition

Answer: B

185) Which property is illustrated by the following statement?

$$75 + (-75) = 0$$

- A) Inverse property of addition
- C) Identity property of addition

- B) Commutative property of addition
- D) Associative property of multiplication

Answer: A

186) Which property is illustrated by the following statement?

$$28 + 0 = 28$$

- A) Commutative property of addition
- C) Identity property of addition

- B) Associative property of multiplication
- D) Inverse property of addition

Answer: C

187) Use the distributive property to clear the parentheses.

$$5(8x + 10)$$

A)  $40x + 10$

B)  $40x + 50$

C)  $(8x + 10)5$

D)  $13x + 15$

Answer: B

188) Use the distributive property to clear the parentheses.

$$-\frac{1}{3}\left(-12z + \frac{6}{5}\right)$$

A)  $4z + \frac{6}{5}$

B)  $4z - \frac{2}{5}$

C)  $4z + \frac{2}{5}$

D)  $-4z + \frac{2}{5}$

Answer: B

189) Use the distributive property to clear the parentheses.

$$\frac{3}{2}(4 - 2z)$$

A)  $6 + 3z$

B)  $6 - 2z$

C)  $6 - 3z$

D)  $4 - 3z$

Answer: C

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

190) Use the distributive property to clear the parentheses.

$$-(a - 14n + 18)$$

Answer:  $-a + 14n - 18$

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

191) Which property is illustrated by the following statement?

$$6(x - 2) = 6x - 12$$

A) Commutative property of addition

B) Commutative property of multiplication

C) Distributive property

D) Associative property of multiplication

Answer: C

192) List the terms in the expression.

$$25x^3 - 14x^2 + 7$$

A)  $25x^3$ ,  $-14x^2$ , 7

B)  $25x^3$ ,  $14x^2$ , 7

C) 25, -14, 7

D) +, -, +

Answer: A

193) List the coefficients in the expression.

$$15x^3 - 9x^2 + 7$$

A) 15, 9, 7

B)  $15x^3$ ,  $-9x^2$ , 7

C) +, -, +

D) 15, -9, 7

Answer: D

194) Which two terms in the expression are like terms?

$$7z + 7z^2 - 18z + 18$$

A) there are no like terms

B)  $-18z$  and 18

C)  $7z$  and  $-18z$

D)  $7z$  and  $7z^2$

Answer: C

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

195) Which two terms in the expression are like terms?

$$5x^2y - 3yx^2 + 7y^2 - 5xy - 7x^2$$

Answer:  $5x^2y$  and  $-3yx^2$

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

196) Simplify by combining like terms.

$$3x - 7 + 7x - 6 - 6x$$

A)  $-9x - 13$

B)  $-9x - 1$

C)  $4x - 13$

D)  $16x - 1$

Answer: C

197) Simplify by combining like terms.

$$\frac{2}{3}y + 5 - \frac{5}{3}y + \frac{1}{2}$$

A)  $\frac{7}{3}y + \frac{11}{2}$

B)  $\frac{9}{2}y$

C)  $-y + \frac{11}{2}$

D)  $-y + \frac{5}{2}$

Answer: C

198) Simplify by clearing parentheses and combining like terms.

$$5(5y - 4) - 9y$$

A)  $12y$

B)  $16y - 4$

C)  $-20y - 20$

D)  $16y - 20$

Answer: D

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

199) Simplify by clearing parentheses and combining like terms.

$$-\frac{11}{3}(t - 4) + 4\left[-\frac{7}{3}t + 5\right] - \left[\frac{1}{2} - \frac{1}{3}t\right]$$

Answer:  $-\frac{38}{3}t + \frac{205}{6}$

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

200) Simplify by clearing parentheses and combining like terms.

$$11 - 4[2(z + 1) - 5(z - 2)]$$

A)  $12z + 43$

B)  $-28z - 37$

C)  $-28z + 43$

D)  $12z - 37$

Answer: D