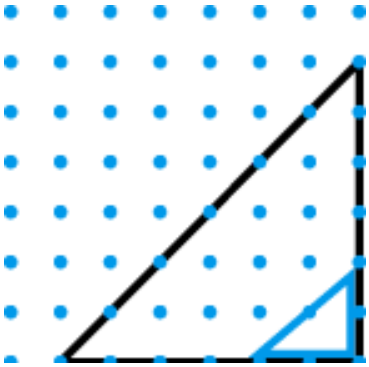
1 A car travels 497 miles in 8 hours. Find the unit rate. Round to the nearest tenth if necessary.

A 1.6 miles per hour
B 52.8 miles per hour
C 77.7 miles per hour
D 62.1 miles per hour

2 A cyclist travels at a speed of 12 miles per hour for 2.5 hours. Find the distance the cyclist travels.

A 5.5 miles
B 25.5 miles
C 30 miles
D 4.8 miles

3 What is the scale factor you need to multiply each side length of the blue figure to match the side lengths of the black figure?



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

4 A 16-oz bottle of water costs $1.44. What is the cost per ounce?

A $0.09/oz
B $0.18/oz
C $0.90/oz
D $1.78/oz

5 $7.80/hour = ____ cents/minute?

A 13
B 8.8
C 780
D 4.7

6 Solve the proportion.

$\frac{2}{10} = \frac{11}{x}$

A 55
B 2.2
C 110
D 1.8

7 A van travels 220 miles on 10 gallons of gas. Find how many gallons the van needs to travel 550 miles.

A 31 gallons of gas
B 121 gallons of gas
C 115 gallons of gas
D 25 gallons of gas

8 Mark wants to buy a skateboard that costs $48. He plans to save $4 per week. How many weeks *w* will it take him to save $48?

A 44 weeks
B 4 weeks
C 52 weeks
D 12 weeks

9 Choose the algebraic expression for the phrase.
the sum of b and 11

A $b - 11$
B $\frac{b}{11}$
C $b + 11$
D $11b$

10 Choose the algebraic expression for the phrase.
the product of g and 4

A $4g$
B $g + 4$
C $\frac{g}{4}$
D $g - 4$

11 Choose the algebraic expression for the phrase.
4 times the sum of q and p

A $4q + p$
B $4 + q + p$
C $4qp$
D $4(q + p)$

12 Choose the expression that matches the phrase.
the quotient of 6 times a number and 16

A $\frac{16x}{6}$
B $\frac{6x}{16}$
C $96x$
D $\frac{x}{96}$

13 Choose the expression that matches the phrase.
4 minus a number

A $4 - n$
B $4n$
C $\frac{4}{n}$
D $\frac{n}{4}$

14 The total cost to rent a row boat is $18 times the number of hours the boat is used. Choose the equation that models this situation if c = total cost and h = number of hours.

A $c = 18h$
B $c - 18 = h$
C $h = 18c$
D $c = \frac{h}{18}$

15 An equilateral triangle has three sides of equal length. What is the equation for the perimeter of an equilateral triangle if P = perimeter and s = length of a side?

A $s = 3P$
B $P = 3s$
C $P = 3 + s$
D $P = 3(s + s + s)$

16 Evaluate $u + xy$, for $u = 18$, $x = 10$, and $y = 8$.

A 188
B 36
C 98
D 224

17 A pair of shoes costs $52.99 and the state sales tax is 8%. Use the formula $C = p + rp$ to find the total cost of the shoes, where C is the total cost, p is the price, and r is the sales tax rate.

A $95.38
B $60.99
C $57.23
D $78.19

18 Simplify the expression.

$3\left[(15-3)^2 \div 4\right]$

A 108
B 36
C 18
D 9

19 Simplify the expression.

$4(20+12) \div (4-3)$

A 29
B 80
C 128
D 92

20 Simplify the expression.

$3^3 \times 32 + 12 \div 4$

A 291
B 219
C 437
D 867

21 Simplify the expression.

$13\left[6^2 \div (5^2 - 4^2) + 9\right]$

A 585
B 169
C 26
D 181

22 Simplify the expression.

$(-3)^4$

A 81
B –81
C –12
D 12

23 Simplify the expression.

$4^2 + (4 \cdot 2^3)$

A 528
B 48
C 32
D 160

24 Simplify the expression.

$3x + 3x$

A $6x$
B $9x$
C $6x^2$
D 6

25 Simplify the expression.

$7d + 12 - 4d - 3$

A $19d - 7$
B $3d + 9$
C $3d^2 + 9$
D $12d$

26 Simplify the expression.
$2c + 2 + 5c$

A $9c$
B $9c^2$
C $7c + 2$
D $4c + 5$

27 Simplify.
$-10z - 28z$

A $38z$
B $-38z$
C 18
D $18z$

28 Simplify.
$-13 + 12 \div (-4) + 2$

A –14
B –8
C 8
D 14

29 You withdrew $100 from the ATM machine. The new balance is $372. What was the original balance *b* of your account?

A $272
B $472
C $272
D $372

30 Solve the equation.
$-30 = j + 50$

A 80
B 20
C –1,500
D –80

31 Solve the equation.

$-12x = -48$

A 576
B 4
C –4
D $\frac{1}{4}$

32 Solve the equation.

$\frac{j}{-11} = -11$

A 0
B –22
C –121
D 121

33 Solve the equation.

$\frac{k}{13} = -29$

A –377
B –16
C –42
D $-\frac{29}{13}$

34 Solve the equation.

$w + 28 = 23$

A –51
B 5
C –5
D 51

35 Solve the equation.
$18 = -d + 12$

A 6
B –11
C –6
D –8

36 You earned $46.70. You would like to buy some new T-shirts. Estimate the number of T-shirts you can buy if each one costs $11.70.

A 6 T-shirts
B 5 T-shirts
C 3 T-shirts
D 4 T-shirts

37 A gas station charges $3.25 per gallon of gasoline. How much will you pay for 20 gallons of gasoline?

A $3.25
B $65.00
C $23.25
D $130.00

38 Choose the simplest form of the fraction.
$\frac{18}{30}$

A $\frac{3}{5}$
B $\frac{9}{16}$
C $\frac{4}{7}$
D $\frac{2}{3}$

39 Choose the simplest form of the fraction.

$\frac{115}{245}$

A $\frac{23}{20}$

B $\frac{24}{49}$

C $\frac{23}{49}$

D $\frac{24}{20}$

40 Identify the fraction that is equivalent to $\frac{2}{7}$.

A $\frac{8}{28}$

B $\frac{8}{21}$

C $\frac{6}{28}$

D $\frac{10}{28}$

41 Identify the fraction that is equivalent to the given fraction.

$\frac{5}{9}$

A $\frac{25}{45}$

B $\frac{20}{45}$

C $\frac{25}{36}$

D $\frac{30}{45}$

42 Identify the fraction that is equivalent to the given fraction.

$\frac{2}{9}$

A $\frac{14}{54}$
B $\frac{10}{54}$
C $\frac{12}{54}$
D $\frac{12}{45}$

43 Convert the decimal to a fraction in simplest form.

2.08

A $2\frac{1}{10}$
B 2
C $\frac{25}{52}$
D $2\frac{2}{25}$

44 What is the decimal written as a percent?

0.63

A 0.063%
B 6.3%
C 630%
D 63%

45 What is the fraction written as a percent?

$\frac{1}{5}$

A 50%
B 5%
C 20%
D 2%

46 What is 60% as a fraction or mixed number in simplest form?

A $1\frac{2}{3}$

B $\frac{3}{5}$

C 6

D $\frac{1}{6}$

47 Choose the set(s) of numbers to which –5 belongs.

A whole numbers, natural numbers, integers
B rational numbers
C whole numbers, integers, rational numbers
D integers, rational numbers

48 Which set of numbers is the most reasonable to describe the number of desks in a classroom?

A whole numbers
B irrational numbers
C rational numbers
D integers

49 Order the fractions from least to greatest.

$-\frac{1}{6}\frac{5}{3}-\frac{5}{6}$

A $-\frac{1}{6}, -\frac{5}{6}, \frac{5}{3}$

B $-\frac{1}{6}, \frac{5}{3}, -\frac{5}{6}$

C $\frac{5}{3}, -\frac{5}{6}, -\frac{1}{6}$

D $-\frac{5}{6}, -\frac{1}{6}, \frac{5}{3}$

50 Evaluate.
$|-2.8|$

A 2.8
B –2.8

51 Is $\sqrt{13}$ *rational* or *irrational*?

A rational
B irrational

52 Simplify the expression.
–9 + 6

A 15
B –3
C –15
D 3

53 Simplify the expression.
–4.8 – (–4.9) + 5.7

A –4
B –5.8
C 5.8
D –15.4

54 Simplify the expression.
$-\frac{1}{8}-\frac{2}{7}$

A $\frac{1}{5}$
B $-\frac{23}{56}$
C $\frac{23}{56}$
D $-\frac{1}{8}$

55 Simplify.
–14 + (–1)

A –15
B –13
C 15
D 13

56 Simplify.
$|-66 - 40|$

A 26
B –26
C –106
D 106

57 Simplify the expression.
–6.5(–4.9)

A –16.25
B –31.85
C –12.25
D 31.85

58 Simplify the expression.
$\frac{(-9)(-8)}{(-2)}$

A 36
B –72
C 72
D –36

59 Simplify.
$5 \cdot (-6) \cdot (-8)$

A –240
B –53
C 240
D 53

60 Choose the property that the statement illustrates.
If $-b = 14$, then $14 = -b$.

A Commutative Property of Multiplication
B Inverse Property of Addition
C Symmetric Property
D Transitive Property

61 Choose the property of multiplication that the statement illustrates.
$ab = ba$

A Inverse
B Symmetric
C Commutative
D Associative

62 Choose the property of addition that the statement illustrates.
$a + (b + c) = (a + b) + c$

A Commutative
B Associative
C Identity
D Inverse

63 Choose the property that the statement illustrates.
$b + 0 = b$

A Identity Property of Multiplication
B Identity Property of Addition
C Symmetric Property
D Inverse Property of Addition

64 Which property does the equation illustrate?
$-2.1 \times 1 = -2.1$

A Inverse Property of Multiplication
B Multiplication Property of –1
C Identity Property of Addition
D Identity Property of Multiplication

65 Which property does the equation illustrate?
$0 + x = x$

A Identity Property of Addition
B Multiplication Property of 0
C Commutative Property of Addition
D Inverse Property of Multiplication

66 Which property does the equation illustrate?
$8 \times \frac{1}{8} = 1$

A Identity Property of Division
B Inverse Property of Addition
C Inverse Property of Multiplication
D Multiplication Property of –1

67 Which property does the equation illustrate?
$8.2 + (-8.2) = 0$

A Inverse Property of Addition
B Addition Property of 0
C Identity Property of Addition
D Inverse Property of Multiplication

68 Which property does the equation illustrate?
$8 + 3.4 = 3.4 + 8$

A Inverse Property of Addition
B Associative Property of Addition
C Commutative Property of Addition
D Inverse Property of Multiplication

69 Which property does the equation illustrate?
$7 + (4 + 4) = (7 + 4) + 4$

A Inverse Property of Addition
B Associative Property of Addition
C Commutative Property of Multiplication
D Commutative Property of Addition

70 Which property does the equation illustrate?

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

A Associative Property of Addition
B Commutative Property of Multiplication
C Inverse Property of Multiplication
D Commutative Property of Addition

71 Which property does the equation illustrate?

$(ab)3 = a(b3)$

A Inverse Property of Multiplication
B Associative Property of Addition
C Associative Property of Multiplication
D Commutative Property of Multiplication

72 Is 112 prime or composite?

A composite
B prime

73 Find the greatest common factor of the numbers.

24 and 54

A 2
B 7
C 6
D 3

74 Find the least common multiple of the set of numbers.

6 and 10

A 15
B 30
C 60
D 45

75 Simplify.

$\frac{5}{12} + \frac{8}{12} =$

A $\frac{13}{24}$

B $1\frac{2}{3}$

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

D $1\frac{1}{12}$

76 Simplify.

$\frac{6}{12} - \frac{3}{12} =$

A $\frac{3}{8}$

B $\frac{1}{8}$

C $\frac{3}{4}$

D $\frac{1}{4}$

77 Simplify.

$\frac{3}{4} + \frac{5}{10} =$

A $\frac{1}{5}$

B $1\frac{1}{4}$

C $1\frac{11}{20}$

D $\frac{4}{7}$

78 Simplify.

$\frac{6}{10} - \frac{1}{3} =$

A $1\frac{9}{10}$

B $\frac{4}{15}$

C $\frac{14}{15}$

D $\frac{1}{6}$

79 Simplify.

$6\frac{1}{3} + 5\frac{5}{6}$

A $11\frac{4}{27}$

B $12\frac{1}{6}$

C $11\frac{8}{15}$

D $12\frac{10}{27}$

80 Simplify.

$8\frac{3}{4} - 4\frac{1}{4}$

A $4\frac{1}{16}$

B $4\frac{9}{16}$

C $4\frac{1}{2}$

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

81 Find the sum.

$\frac{3}{12} + \frac{5}{8}$

A $\frac{2}{5}$

B $\frac{1}{12}$

C $\frac{7}{8}$

D $\frac{19}{24}$

82 Simplify.

$\frac{3}{6} \times \frac{7}{10} =$

A $\frac{7}{20}$

B $2\frac{1}{10}$

C $\frac{5}{7}$

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

83 Write the fraction in lowest terms.

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

A 2

B $\frac{1}{2}$

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

D $\frac{8}{9}$

84 Write the fraction in lowest terms.

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

A $\frac{3}{4}$

B $1\frac{1}{6}$

C $\frac{1}{3}$

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

85 What is the expression expressed using an exponent?

$3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3$

A 33^6

B 3^6

C $3 \cdot 6$

D 6^3

86 Write using exponents.

$8 \cdot 8 \cdot 8 \cdot 8 \cdot 8 \cdot 8 \cdot 8 \cdot 8$

A 8^8

B 88^8

C $8 \cdot 8$

D 8^8

87 Write using exponents.

$5 \cdot 5 \cdot 5 \cdot 6 \cdot 7 \cdot 7$

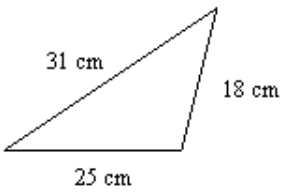
A $5^3 \cdot 6 \cdot 7^2$

B $3^5 \cdot 1^6 \cdot 2^7$

C $5^3 \cdot 1^6 \cdot 7^2$

D $5^3 + 6 + 7^2$

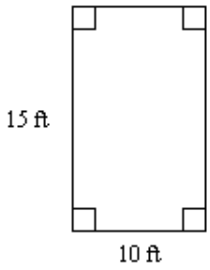
88 Find the perimeter of the figure.



Drawing not to scale

A 74 cm
B 80 cm
C 68 cm
D 87 cm

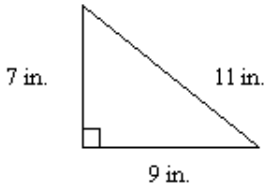
89 Find the perimeter of the figure.



Drawing not to scale

A 25 ft
B 60 ft
C 50 ft
D 150 ft

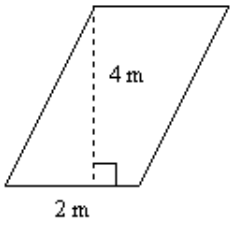
90 Find the area of the figure.



Drawing not to scale

A 31.5 $in.^2$
B 173.3 $in.^2$
C 27 $in.^2$
D 63 $in.^2$

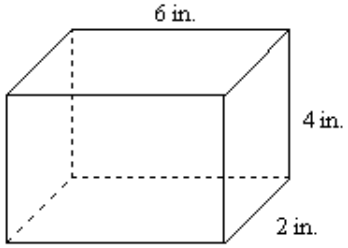
91 Find the area of the figure.



Drawing not to scale

A $8\ m^2$
B $16\ m^2$
C $4\ m^2$
D $12\ m^2$

92 Find the volume of the solid. Round to the nearest tenth if necessary.



Drawing not to scale

A $24\ in.^3$
B $96\ in.^3$
C $48\ in.^3$
D $16\ in.^3$