

Level: 2

**Round each to the place indicated.**

1)  $5,016,273,935$   
—

2)  $861,965,047$   
—

**Write each numeral in words.**

3) 99,100,820

4) 70,553,609

**Evaluate each expression.**

5)  $(84 - (-)54 - (-)43 -)$

6)  $(-31) - (-46) - 34$

**Find each product.**

7)  $2 - \times 2$

8)  $19 \times -2$

**Find each quotient.**

9)  $41 \div 691 -$

10)  $15 \div 3$

**Write the prime factorization of each. Do not use exponents.**

11) 43

12) 46

**Find the GCF of each.**

13)  $20v, 70v$

14)  $38x, 76x$

**Find the LCM of each.**

15) 39, 52

16) 48, 24

**Simplify each. Write your answer as a mixed number when possible.**

17)  $2\frac{12}{18}$

18)  $\frac{63}{45}$

**Write each as a percent. Write remainders as a fraction.**

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

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

**Write each as a verbal expression.**

21)  $d + 5 = 23$

22)  $2 \cdot 12$

**Evaluate each expression.**

23)  $\frac{8}{8} - (6 + 6)$

24)  $(-4) + 5((-9) - 4)$

**Simplify each expression.**

25)  $3x - (1 + 7x)$

26)  $3 - 3(p - 5)$

**Solve each equation.**

27)  $13n = 260$

28)  $20 = \frac{m}{19}$

29) A colony of ants carried away 15 of your muffins. That was  $\frac{3}{4}$  of all of them! How many are left?

30) Your cousin gave you \$12 with which to buy a present. This covered  $\frac{4}{9}$  of the cost. How much did the present cost?

**Solve each equation.**

31)  $-8 + \frac{b}{2} = -10$

32)  $\frac{n + 12}{14} = 1$

33) A wise man once said, "500 reduced by 4 times my age is 164." What is his age?

34) How old am I if 500 reduced by 4 times my age is 216?

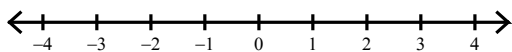
**Solve each equation.**

35)  $5(-3n + 3) = 15 + 2n$

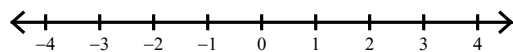
36)  $4 - 7(2a + 4) = 16 - 6a$

**Draw a graph for each inequality.**

37)  $3 < v$

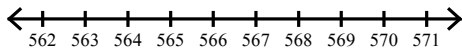


38)  $-1.8 < x$

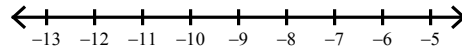


Solve each inequality and graph its solution.

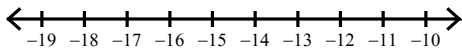
39)  $27 \geq \frac{x}{21}$



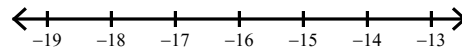
40)  $-8 + n > -18$



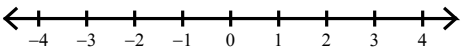
41)  $\frac{p}{14} - 7 > -8$



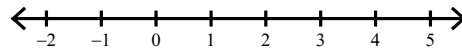
42)  $\frac{5+k}{2} < -6$



43)  $4(3 + 6x) \leq 12 + 6x$



44)  $-4(7n + 7) > -28 + 8n$



Each number is divisible by which of the following: 2, 3, 5, 9, 10?

45) 146

46) 149

Simplify. Your answer should contain only positive exponents.

47)  $\frac{8ba^3}{6a^0b^2}$

48)  $\frac{5x^2}{7x^2y^4}$

Write each number in scientific notation.

49)  $0.27 \times 10^3$

50)  $0.75 \times 10^1$

Simplify. Write each answer in scientific notation.

51)  $(5 \times 10^{-6})(2.5 \times 10^{-6})$

52)  $(9.8 \times 10^{-1})(3.5 \times 10^3)$

State if each pair of ratios forms a proportion.

53)  $\frac{4}{5}$  and  $\frac{28}{30}$

54)  $\frac{5}{6}$  and  $\frac{30}{48}$

**Solve each proportion.**

55)  $\frac{x}{12} = -\frac{5}{9}$

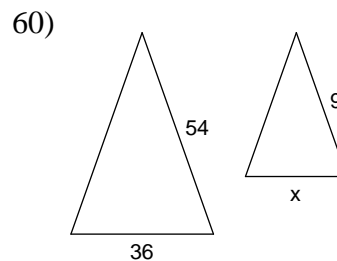
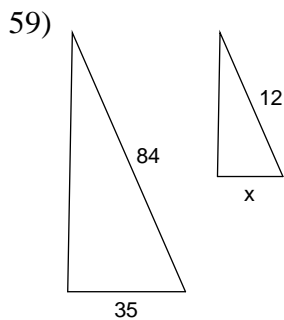
56)  $\frac{3}{8} = \frac{12}{n}$

**Answer each question and round your answer to the nearest whole number.**

57) Ashley took a trip to Tajikistan. Upon leaving she decided to convert all of her Somoni back into dollars. How many dollars did she receive if she exchanged 40 Somoni at a rate of \$3 for 10 Somoni?

58) Natalie took a trip to the United Arab Emirates. Upon leaving she decided to convert all of her Dirhams back into dollars. How many dollars did she receive if she exchanged 44 Dirhams at a rate of 4 Dirhams for \$1?

**Each pair of figures is similar. Find the missing side.**



**Answer each question and round your answer to the nearest whole number.**

61) An adult giraffe that is 18 ft tall casts a shadow that is 9 ft long. Find the height of a lawn ornament that casts a 1 ft shadow.

62) A map has a scale of 3 in : 20 mi. If Smithville and Sun Valley are 60 mi apart then they are how far apart on the map?

**Write each as a percent. Write remainders as a fraction.**

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

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

**Solve each problem.**

65) 192 is 25% of what?

66) 120 is what percent of 161?

**Find each percent change. Round to the nearest tenth of a percent. State if it is an increase or decrease.**

67) From 15 to 14

68) From 18 to 10

**Find the selling price of each item.**

69) Original price of shoes: \$19.50  
Discount: 60%  
Tax: 3%

70) Original price of a car: \$15,500.00  
Discount: 25%  
Tax: 3%

**Find the total value of the investment after the time given.**

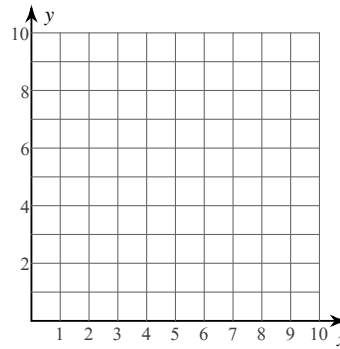
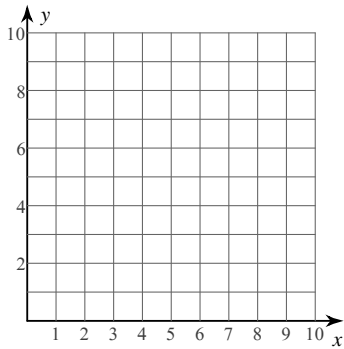
71) \$9,400 at 11% compounded annually for 8 years

72) \$27,400 at 3% compounded annually for 9 years

**Plot each point.**

73)  $C(4, 10)$   $D(4, 9)$   $E(9, 2)$   
 $F(2, 0)$   $G(7, 2)$

74)  $N(2, 3)$   $M(10, 6)$   $L(3, 4)$   
 $K(10, 9)$   $J(2, 7)$



**Find the midpoint of the line segment with the given endpoints.**

75)  $(10.7, -5.03)$ ,  $(-4.56, -4.8)$

76)  $(1.1, 6.8)$ ,  $(8.3, 6.2)$

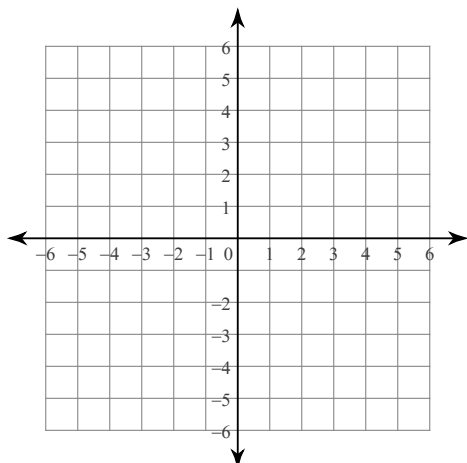
**Find the slope of the line through each pair of points.**

77)  $(19, -3)$ ,  $(-20, -8)$

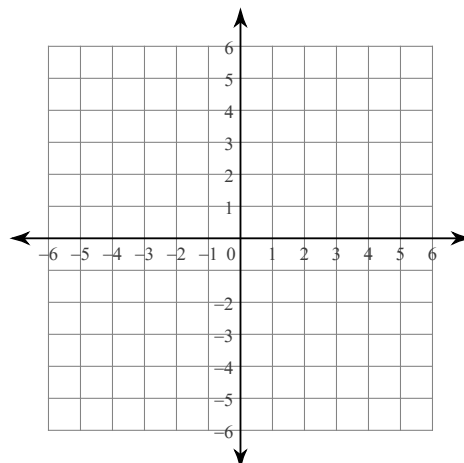
78)  $(6, -15)$ ,  $(11, 16)$

Sketch the graph of each line.

79)  $y = \frac{7}{4}x - 4$

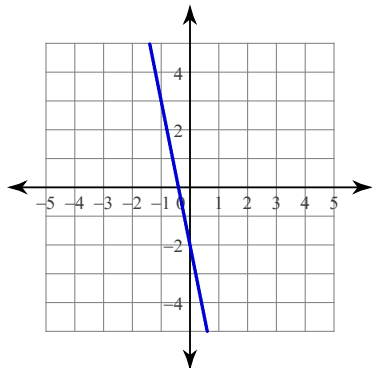


80)  $y = -\frac{7}{4}x - 5$

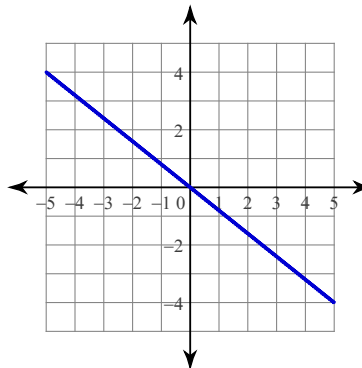


Write the slope-intercept form of the equation of each line.

81)

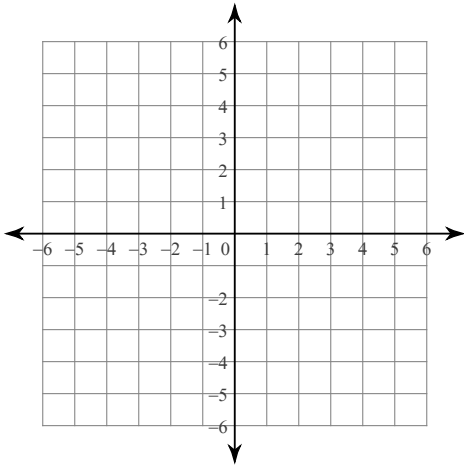


82)

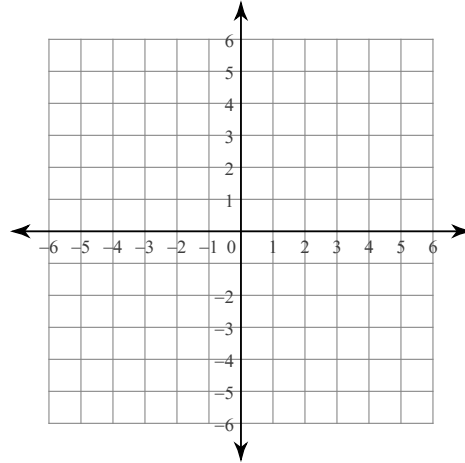


Sketch the graph of each linear inequality.

83)  $y < 8x + 3$



84)  $y > \frac{4}{3}x + 1$



Solve each system by graphing.

85)  $y = x + 5$

$$y = -\frac{5}{6}x - 6$$

86)  $y = 2$

$$y = -\frac{3}{4}x + 8$$

Solve each system by substitution.

87)  $y = 1$

$$-x + 3y = 2$$

88)  $-5x - 3y = -8$

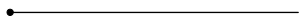
$$y = x$$

89) Elisa spent \$111 on shirts. Tee shirts cost \$6 and long sleeve shirts cost \$15. If she bought a total of 11 then how many of each kind did she buy?

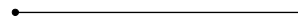
90) There are 18 animals in the field. Some are buffalo and some are chickens. There are 64 legs in all. How many of each animal are in the field?

Draw an angle with the given measurement.

91)  $86^\circ$

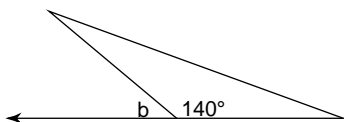


92)  $92^\circ$

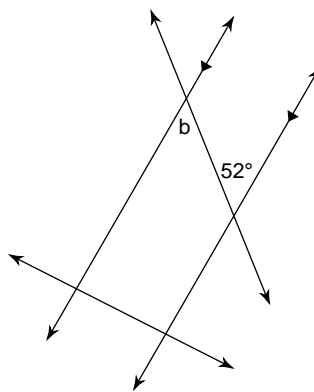


Find the measure of angle b.

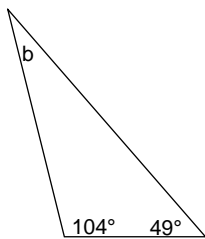
93)



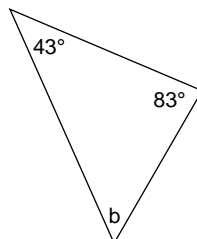
94)



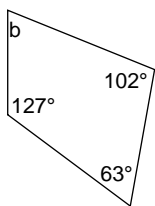
95)



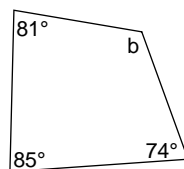
96)



97)

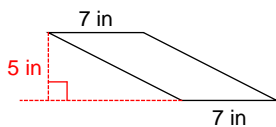


98)

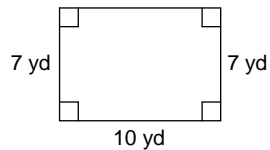


Find the area of each.

99)



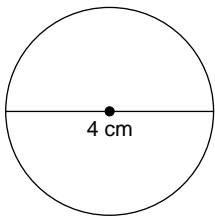
100)



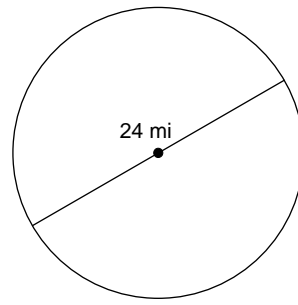


Find the area of each. Round your answer to the nearest tenth.

101)

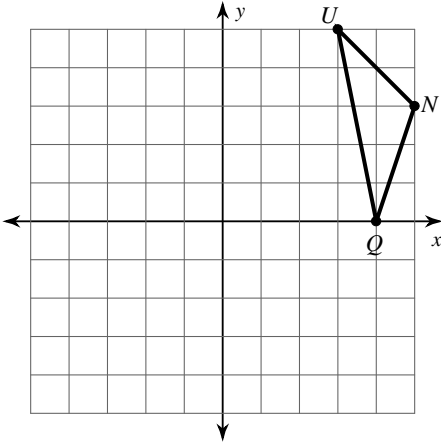


102)

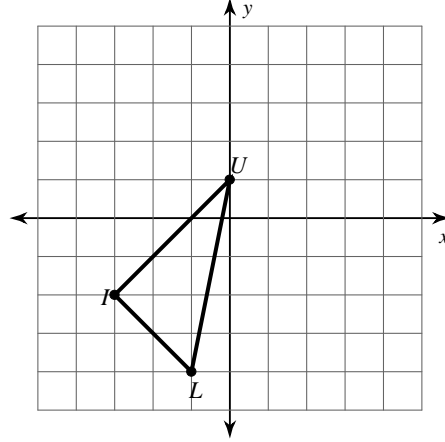


Find the coordinates of the vertices of each figure after the given transformation.

103) reflection across  $x = 2$

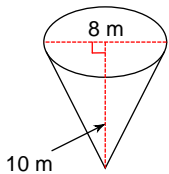


104) translation: 5 units right and 4 units up

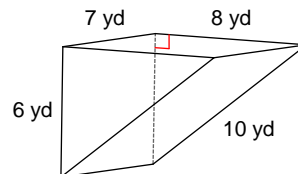


Find the volume of each figure. Round to the nearest tenth.

105)



106)



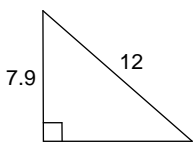
Find each square root. Round to the nearest whole number.

107)  $-\sqrt{46}$

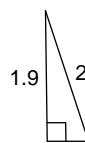
108)  $\sqrt{50}$

Find each missing length to the nearest tenth.

109)



110)



**Find the distance between each pair of points.**

111)  $(-0.5, 1), (4.3, -4.4)$

112)  $(3.2, 6.5), (6.5, -7.8)$

**Simplify each expression.**

113)  $(2n^3 - 3n^2 - 6n) - (14n^3 + 4n + 5n^2)$

114)  $(-6x^5 + 9x^2 - 9x^3) - (9x + 7x^3 + 8x^5)$

**Find each product.**

115)  $-2(-7x^2 - 6x - 4)$

116)  $3n^3(-n^2 - 5n + 7)$

## Answers to Level: 2

1) 5,000,000,000

2) 862,000,000

3) ninety-nine million, one hundred thousand, eight hundred twenty

5) 59

6) -19

4) seventy million, five hundred fifty-three thousand, six hundred nine

7) -4

8) -38

9) -14

10) 5

11) 43

12)  $2 \cdot 23$

13)  $10v$

14)  $38x$

15) 156

16) 48

17)  $2\frac{2}{3}$

18)  $1\frac{2}{5}$

19) 40%

20) 20%

21)  $d$  plus 5 is equal to 23

22) twice 12

23) -11

24) -69

25)  $-4x - 1$

26)  $18 - 3p$

27)  $\{20\}$

28)  $\{380\}$

29) 5

30) \$27

31)  $\{-4\}$

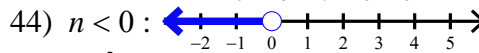
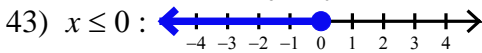
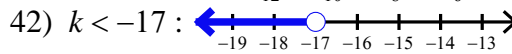
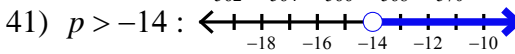
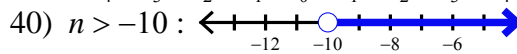
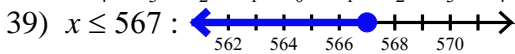
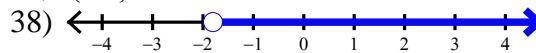
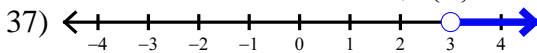
32)  $\{2\}$

33) 84

34) 71

35)  $\{0\}$

36)  $\{-5\}$



45) 2

46) None

47)  $\frac{4a^3}{3b}$

48)  $\frac{5}{7y^4}$

49)  $2.7 \times 10^2$

50)  $7.5 \times 10^0$

51)  $1.25 \times 10^{-11}$

52)  $3.43 \times 10^3$

53) No

54) No

55)  $\{-6.66\}$

56)  $\{32\}$

57) \$12

58) \$11

59) 5

60) 6

61) 2 ft

62) 9 in

63) 50%

64)  $66\frac{2}{3}\%$

65) 768

66) 74.5%

67) 6.7% decrease

68) 44.4% decrease

69) \$8.03

70) \$11,973.75

71) \$21,662.66

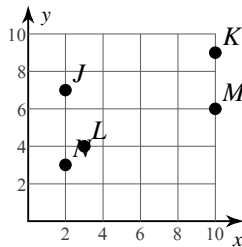
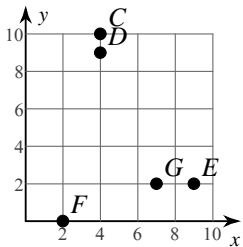
72) \$35,750.79

73)

74)

75)  $(3.07, -4.915)$

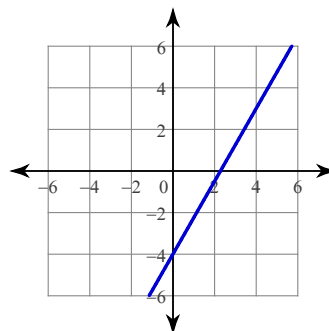
76)  $(4.7, 6.5)$



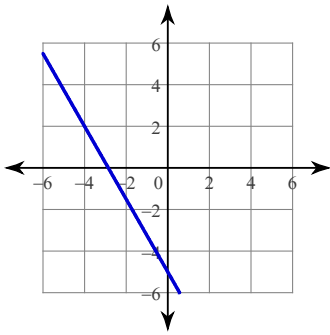
77)  $\frac{5}{39}$

78)  $\frac{31}{5}$

79)



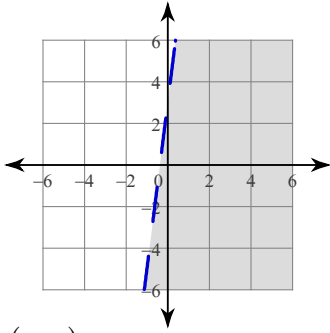
80)



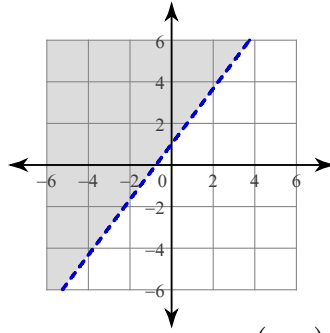
81)  $y = -5x - 2$

82)  $y = -\frac{4}{5}x$

83)



84)

85)  $(-6, -1)$ 86)  $(8, 2)$ 87)  $(1, 1)$ 

89) 6 tee shirts and 5 long sleeve shirts

90) 4 chickens and 14 buffalo

91)

92)

93)  $40^\circ$ 94)  $52^\circ$ 95)  $27^\circ$ 96)  $54^\circ$ 97)  $68^\circ$ 98)  $120^\circ$ 99)  $35 \text{ in}^2$ 100)  $70 \text{ yd}^2$ 101)  $12.6 \text{ cm}^2$ 102)  $452.4 \text{ mi}^2$ 103)  $U'(1, 5), N'(-1, 3), Q'(0, 0)$ 104)  $I'(2, 2), U'(5, 5), L'(4, 0)$ 105)  $167.6 \text{ m}^3$ 106)  $168 \text{ yd}^3$ 107)  $-7$ 108)  $7$ 109)  $9$ 110)  $0.6$ 111)  $7.22495674728$ 112)  $14.6758304705$ 113)  $-12n^3 - 8n^2 - 10n$ 114)  $-14x^5 - 16x^3 + 9x^2 - 9x$ 115)  $14x^2 + 12x + 8$ 116)  $-3n^5 - 15n^4 + 21n^3$