

## Students Entering Geometry

**Simplify each expression.**

1)  $-7(m + 6) - 6$

2)  $-3(-5n + 2) + 3n$

3)  $-6(1 - n) - 7n$

4)  $-5(3 - 2a) - 2a$

5)  $-5r - 7(r - 6)$

6)  $-4b - 4(b + 7)$

7)  $6(x - 2) + x(-6x - 3)$

8)  $6(x - 6) + 2(1 - 4x)$

9)  $8(v + 6) + 2v(3 + 3v)$

10)  $-6(m + 5) - 3m(7m + 4)$

11)  $4x(-6 + 2x) - 7x(x - 4)$

12)  $-5(2 + 8m) - 4m(2 + m)$

**Solve each equation.**

13)  $-22 = x - 6$

14)  $48 = -8m$

15)  $-18 = \frac{n}{6}$

16)  $60 = 15v$

17)  $28 + 4n = -2(6n - 6)$

18)  $7(4 - 3p) + 6p = -17 - 6p$

19)  $2 - 2n = -4 + 6(1 - 6n)$

20)  $-3(v - 3) - 7v = -23 - 6v$

21)  $40 - 8k = 2k - 5(8 + 6k)$

22)  $-5(-2 + 2x) = -23 + x$

**Solve each equation for the indicated variable.**

23)  $z = \frac{b}{ma}$ , for  $a$

24)  $a - m = n - p$ , for  $a$

25)  $z = y - \frac{m}{x}$ , for  $x$

26)  $ca = d - r$ , for  $a$

**Solve each proportion.**

$$27) \frac{2}{8} = \frac{r}{9}$$

$$28) -\frac{10}{11} = -\frac{b}{4}$$

$$29) -\frac{3}{b} = \frac{4}{10}$$

$$30) -\frac{4}{5} = \frac{x}{11}$$

**Evaluate each using the values given.**

$$31) r + r - p; \text{ use } p = 3, \text{ and } r = 3$$

$$32) pq + r; \text{ use } p = 4, q = 3, \text{ and } r = 1$$

$$33) q(m - 1); \text{ use } m = 3, \text{ and } q = 5$$

$$34) c - (a - 4); \text{ use } a = 6, \text{ and } c = 3$$

**Evaluate each expression.**

$$35) (-2) \times (-8) \times (-1) \times 4$$

$$36) (-10) \times (-4) - 7 - 6$$

**Evaluate each using the values given.**

$$37) 1 + |x| - x + z; \text{ use } x = -9, \text{ and } z = 8$$

$$38) -8|z - y| + z; \text{ use } y = -1, \text{ and } z = -6$$

**Simplify. Your answer should contain only positive exponents.**

$$39) 4m^{-4}n^3 \cdot 4m^3n^{-2}$$

$$40) 2x^2y^{-1} \cdot 4y^{-4}$$

$$41) m^4 \cdot 3m^0$$

$$42) 3x^{-4}y^3 \cdot 3x^2y^2 \cdot 4x^3y^{-1}$$

$$43) \frac{x^3y^{-4} \cdot (y^3)^{-2}}{y^{-3}}$$

$$44) \frac{a^4b^2 \cdot a^{-1}}{(ab^{-1})^{-4}}$$

$$45) \frac{y^{-4} \cdot (x^{-3}y^4)^3}{2x^2}$$

$$46) \left( \frac{v^2 \cdot 2vu^3}{2u^0v^0} \right)^3$$

**Factor the common factor out of each expression.**

$$47) -18 - 24r^2 + 18r^3$$

$$48) -80 - 16k + 8k^2$$

49)  $49x^{10} + 63x^8 + 70x^7$

50)  $-8x^3 - 4x - 4$

**Factor each completely.**

51)  $18x^3 - 30x^2 + 3x - 5$

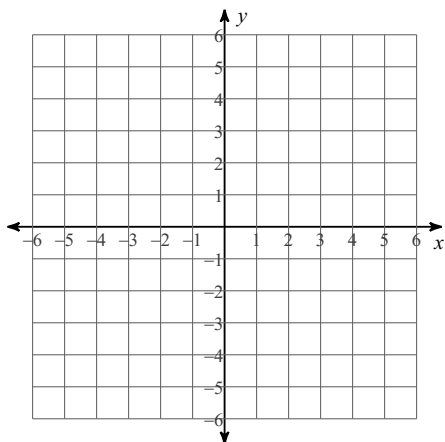
52)  $20p^3 - 8p^2 - 25p + 10$

53)  $28x^3 + 24x^2 - 7x - 6$

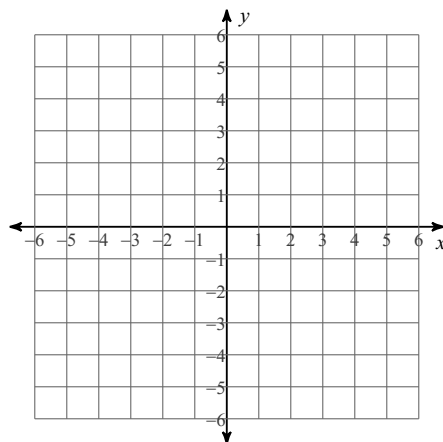
54)  $4m^3 + 32m^2 + 7m + 56$

**Sketch the graph of each line.**

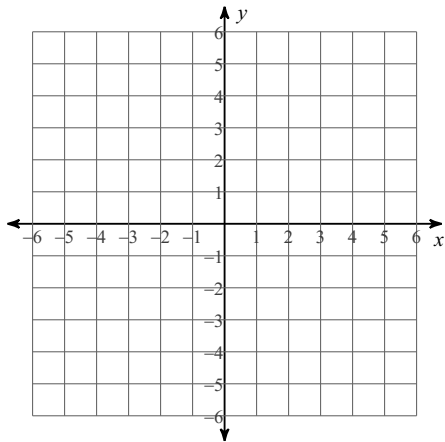
55)  $x - y = 0$



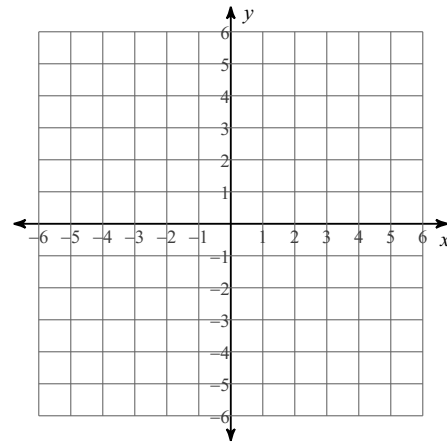
56)  $2x - 3y = 6$



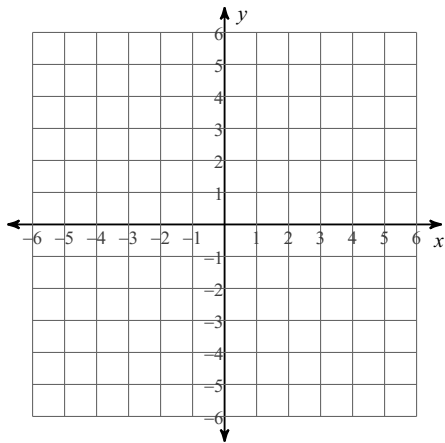
$$57) y = -\frac{2}{5}x - 3$$



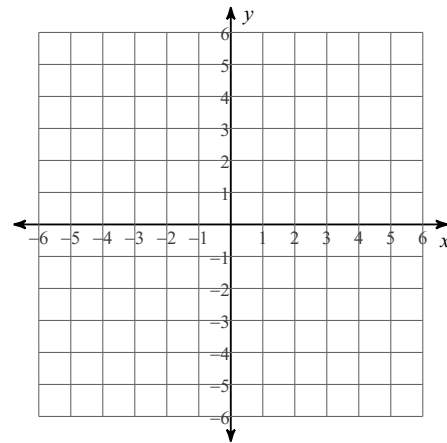
$$58) y = -\frac{1}{2}x - 5$$



$$59) -3x + 4y = 0$$



$$60) 2y = -x$$



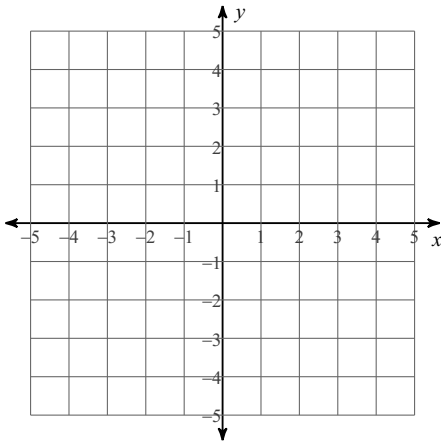
**Solve each system by graphing.**

$$61) \begin{cases} y = x + 4 \\ y = -\frac{3}{2}x - 1 \end{cases}$$

$$62) \begin{cases} y = -2x - 3 \\ y = 3 \end{cases}$$

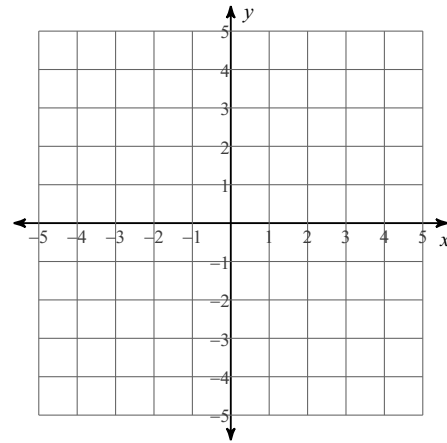
$$63) y = -\frac{1}{2}x - 1$$

$$y = -\frac{3}{2}x + 3$$



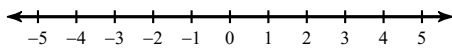
$$64) y = \frac{5}{4}x - 3$$

$$y = \frac{1}{4}x + 1$$

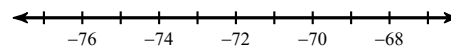


**Solve each inequality and graph its solution.**

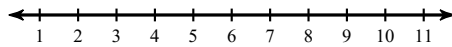
$$65) -16x < 16$$



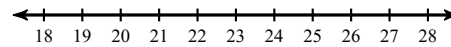
$$66) -12 \geq \frac{x}{6}$$



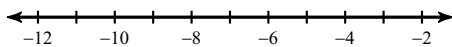
$$67) 24 + r \leq 30$$



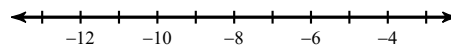
$$68) 18x \leq 432$$



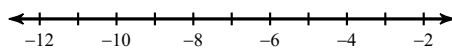
$$69) -8 + 8(-2x + 4) \leq 152$$



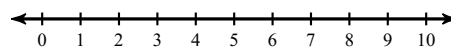
$$70) 6r - 5(8 + 8r) \leq 232$$



$$71) 26 + 6m < 2(m - 3)$$



$$72) -4(k - 4) < -29 + 5k$$



**Evaluate each expression.**

73)  $(15 \times 2) \div 5$

74)  $(14 - 5) \div 3$

75)  $6^2 \div 6$

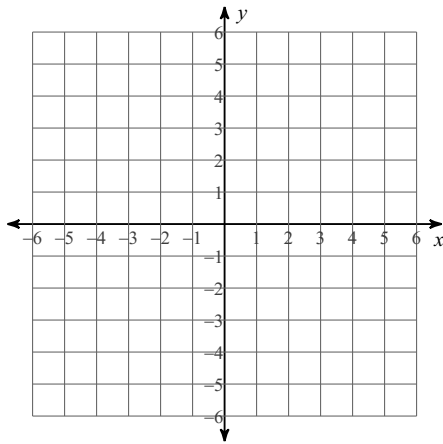
76)  $(10 - 1)((-1) + 2)$

77)  $(-5) + ((-1) + 2)^3$

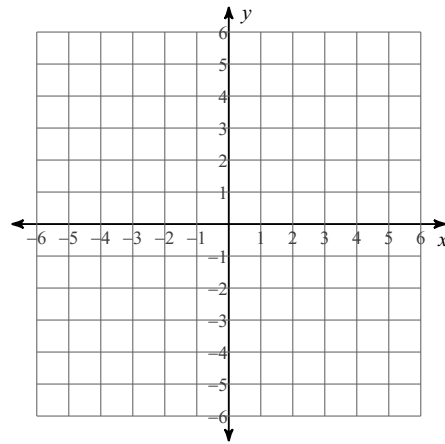
78)  $5(4 - (-6) + 6)$

**Sketch the graph of each line.**

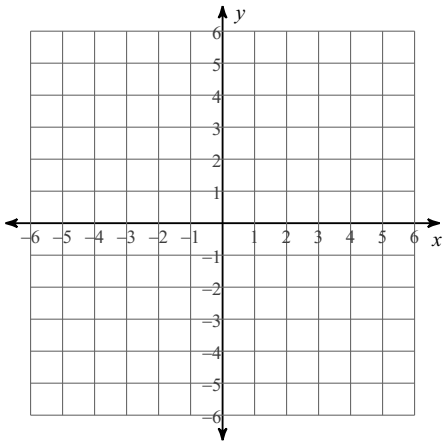
79)  $7x - 5y = -25$



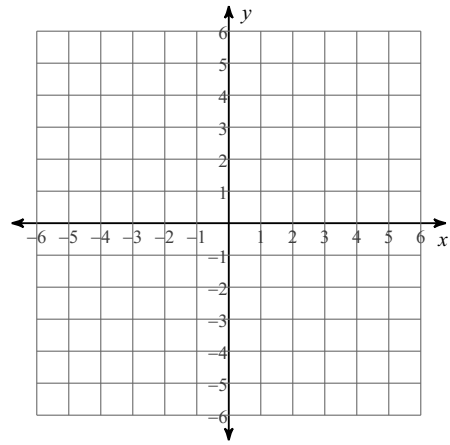
80)  $4x + 3y = 0$



81)  $3x + 5y = -5$

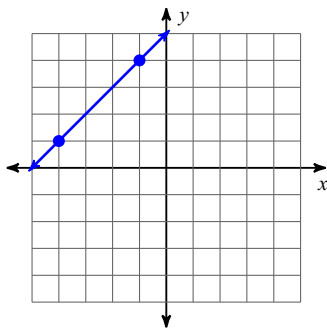


82)  $x - 2y = 2$

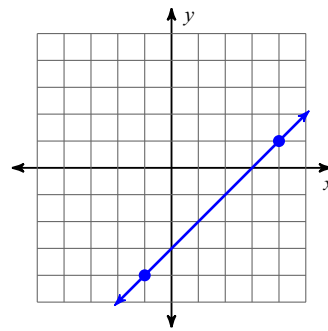


**Find the slope of each line.**

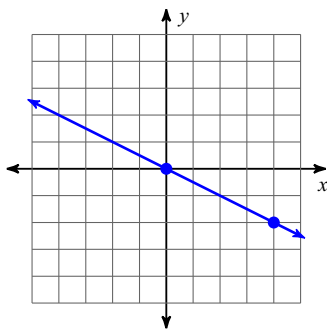
83)



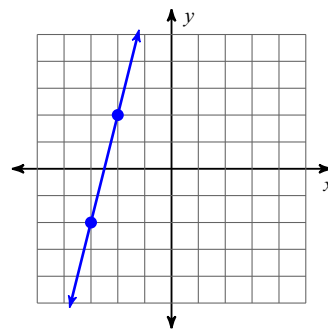
84)



85)

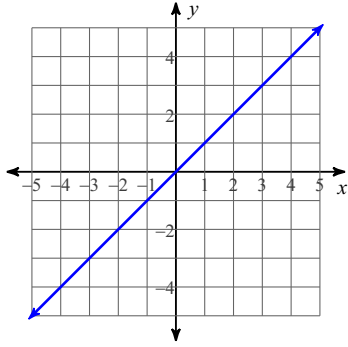


86)

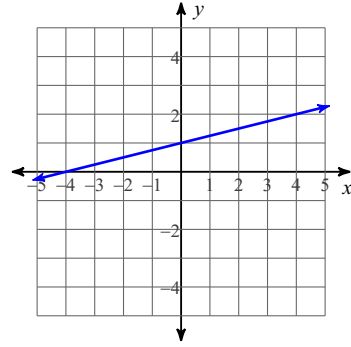


Write the slope-intercept form of the equation of each line.

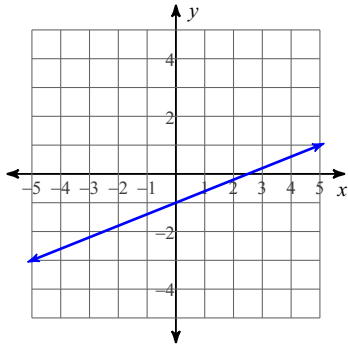
87)



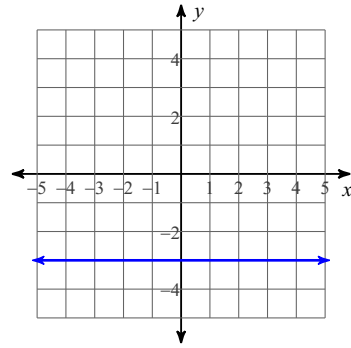
88)



89)



90)



Find each product.

91)  $(3v + 4)(v + 1)$

92)  $(5k - 1)(8k + 8)$

93)  $(4n - 4)(5n + 5)$

94)  $(v - 3)(v + 1)$

95)  $(5n - 5)(5n - 2)$

96)  $(x + 3)(4x - 8)$

97)  $(5 + 6p)(5 - 6p)$

98)  $(5n + 5)^2$

99)  $(2n - 2)^2$

Simplify each expression.

100)  $\frac{1}{n + 4} \cdot \frac{n^2 + 11n + 28}{n + 10}$

101)  $\frac{1}{7n^2 + 35n} \cdot \frac{n^2 + 15n + 50}{2n}$



102)  $\frac{12 - v - v^2}{7} \cdot \frac{7}{4v^3 - 12v^2}$

103)  $\frac{1}{v - 8} \cdot \frac{10v^2 - 80v}{10v}$

104)  $(5k^4 + 5k^3 + 3) - (8 + 2k^3 + 4k^4)$

105)  $(8m^2 + m^3 + 7m) - (5 + 3m^2 - 2m^3)$

**Find each product.**

106)  $(4n - 5)(n - 4)$

107)  $(3x + 2)(5x - 8)$

108)  $(7x - 4)^2$

109)  $(6k - 1)(6k + 1)$

**Find the value of x or y so that the line through the points has the given slope.**

110)  $(7, 7)$  and  $(x, 4)$ ; slope:  $\frac{1}{2}$

111)  $(-2, y)$  and  $(8, -6)$ ; slope:  $-\frac{4}{5}$

112)  $(7, 1)$  and  $(x, 7)$ ; slope:  $-\frac{3}{2}$

113)  $(x, -5)$  and  $(6, -1)$ ; slope:  $\frac{4}{7}$

**Solve each system by elimination.**

114)  $14x + 18y = 26$   
 $-7x - 9y = -13$

115)  $-4x - y = -10$   
 $-9x - 6y = -15$

116)  $10x + 2y = 10$   
 $20x + 7y = 20$

117)  $-6x - 4y = -24$   
 $12x + 2y = 30$

**Solve each system by graphing.**

118)  $y = -\frac{3}{2}x - 4$   
 $y = -\frac{1}{2}x - 2$

119)  $y = 2x + 3$   
 $y = -\frac{3}{2}x - 4$

**Solve each system by substitution.**

120)  $y = -3$   
 $-3x + 5y = -6$

121)  $3x - 12y = 5$   
 $x - 4y = 3$

122)  $x + 5y = -19$   
 $5x - 7y = 1$

123)  $x + y = -8$   
 $2x + 3y = -19$

**Solve each system by elimination.**

$$\begin{aligned} 124) \quad & 12x + 4y = 4 \\ & -6x + 5y = 5 \end{aligned}$$

$$\begin{aligned} 125) \quad & x - 2y = 18 \\ & -9x - 4y = -30 \end{aligned}$$