

Students Entering Geometry

Simplify each expression.

1) $-7(m+6) - 6$
 $-7m - 48$

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

5) $-5r - 7(r-6)$
 $-12r + 42$

7) $6(x-2) + x(-6x-3)$
 $3x - 12 - 6x^2$

9) $8(v+6) + 2v(3+3v)$
 $14v + 48 + 6v^2$

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

2) $-3(-5n+2) + 3n$
 $18n - 6$

4) $-5(3-2a) - 2a$
 $-15 + 8a$

6) $-4b - 4(b+7)$
 $-8b - 28$

8) $6(x-6) + 2(1-4x)$
 $-2x - 34$

10) $-6(m+5) - 3m(7m+4)$
 $-18m - 30 - 21m^2$

12) $-5(2+8m) - 4m(2+m)$
 $-10 - 48m - 4m^2$

Solve each equation.

13) $-22 = x - 6$
 $\{-16\}$

15) $-18 = \frac{n}{6}$
 $\{-108\}$

17) $28 + 4n = -2(6n - 6)$
 $\{-1\}$

19) $2 - 2n = -4 + 6(1 - 6n)$
 $\{0\}$

21) $40 - 8k = 2k - 5(8 + 6k)$
 $\{-4\}$

14) $48 = -8m$
 $\{-6\}$

16) $60 = 15v$
 $\{4\}$

18) $7(4 - 3p) + 6p = -17 - 6p$
 $\{5\}$

20) $-3(v - 3) - 7v = -23 - 6v$
 $\{8\}$

22) $-5(-2 + 2x) = -23 + x$
 $\{3\}$

Solve each equation for the indicated variable.

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

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

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

26) $ca = d - r$, for a $a = \frac{d-r}{c}$

Solve each proportion.

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

{2.25}

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

{3.64}

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

{-7.5}

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

{-8.8}

Evaluate each using the values given.

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

3

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

13

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

10

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

1

Evaluate each expression.

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

-64

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

27

Evaluate each using the values given.

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

27

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

-46

Simplify. Your answer should contain only positive exponents.

$$39) 4m^{-4}n^3 \cdot 4m^3n^{-2} \frac{16n}{m}$$

$$40) 2x^2y^{-1} \cdot 4y^{-4} \frac{8x^2}{y^5}$$

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

3m⁴

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

36y⁴x

$$43) \frac{x^3y^{-4} \cdot (y^3)^{-2}}{y^{-3}} \frac{x^3}{y^7}$$

$$44) \frac{a^4b^2 \cdot a^{-1}}{(ab^{-1})^{-4}} \frac{a^7}{b^2}$$

$$45) \frac{y^{-4} \cdot (x^{-3}y^4)^3}{2x^2} \frac{y^8}{2x^{11}}$$

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

v⁹u⁹

Factor the common factor out of each expression.

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

6(-3 - 4r² + 3r³)

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

8(-10 - 2k + k²)

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

$$7x^7(7x^3 + 9x + 10)$$

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

$$-4(2x^3 + x + 1)$$

Factor each completely.

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

$$(6x^2 + 1)(3x - 5)$$

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

$$(4p^2 - 5)(5p - 2)$$

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

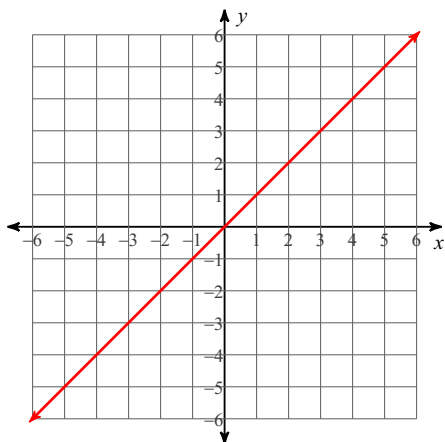
$$(2x - 1)(2x + 1)(7x + 6)$$

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

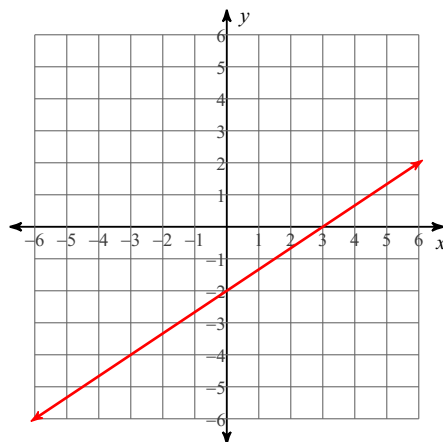
$$(4m^2 + 7)(m + 8)$$

Sketch the graph of each line.

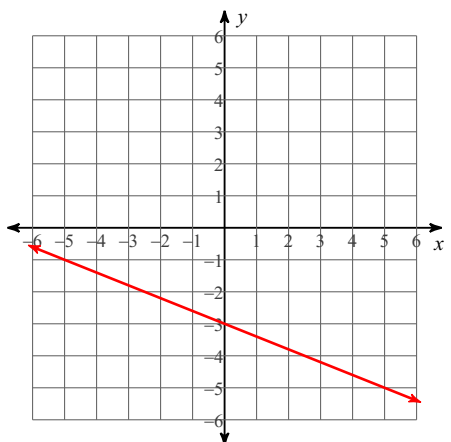
$$55) x - y = 0$$



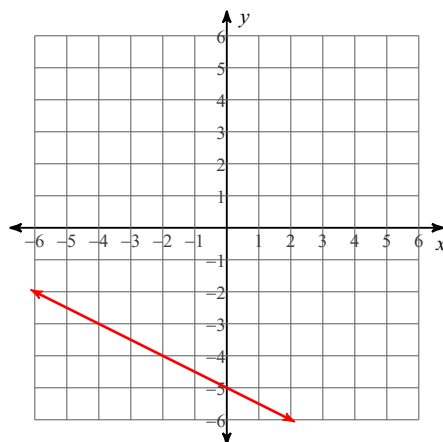
$$56) 2x - 3y = 6$$



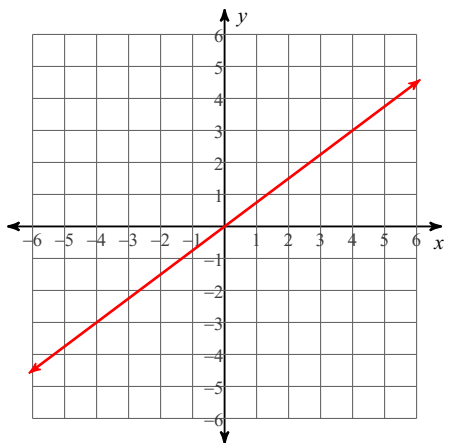
$$57) y = -\frac{2}{5}x - 3$$



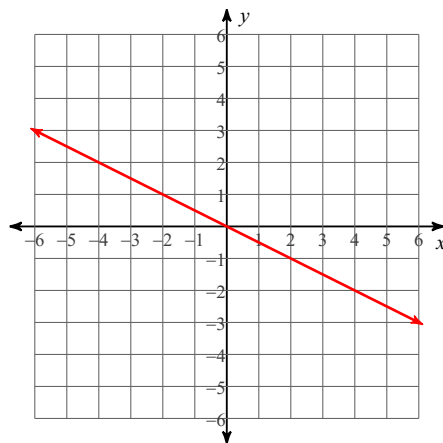
$$58) y = -\frac{1}{2}x - 5$$



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



$$60) 2y = -x$$



Solve each system by graphing.

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

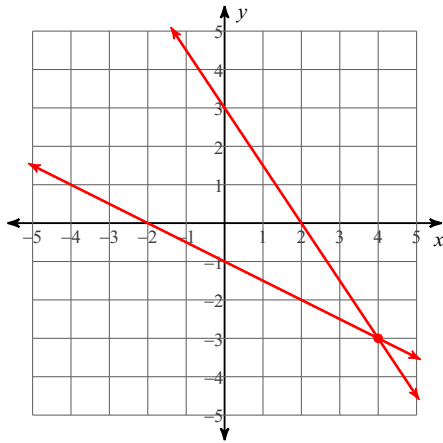
$(-2, 2)$

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

$(-3, 3)$

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

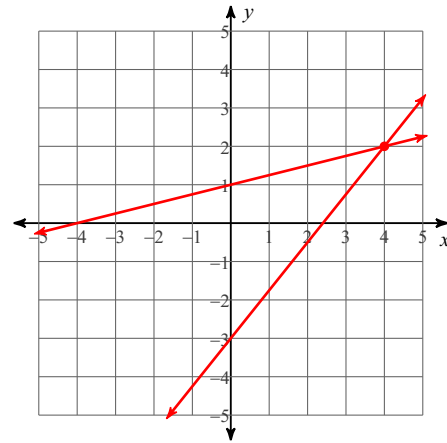
$$y = -\frac{3}{2}x + 3$$



$(4, -3)$

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

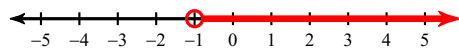
$$y = \frac{1}{4}x + 1$$



$(4, 2)$

Solve each inequality and graph its solution.

$$65) -16x < 16$$



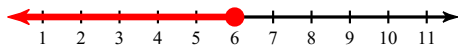
$x > -1$

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



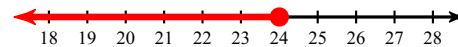
$x \leq -72$

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



$r \leq 6$

$$68) 18x \leq 432$$



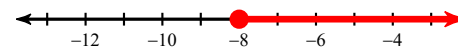
$x \leq 24$

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



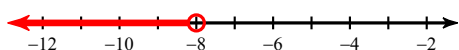
$x \geq -8$

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



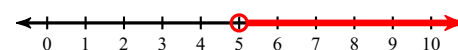
$r \geq -8$

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



$m < -8$

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



$k > 5$

Evaluate each expression.

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

6

75) $6^2 \div 6$

6

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

-4

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

3

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

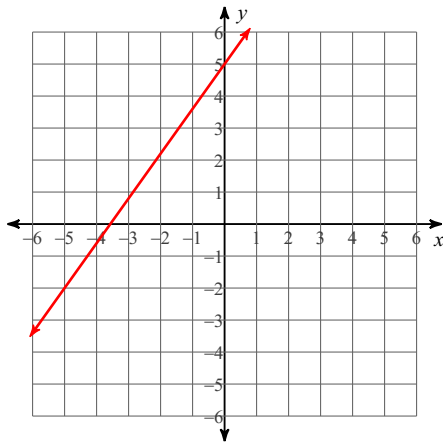
9

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

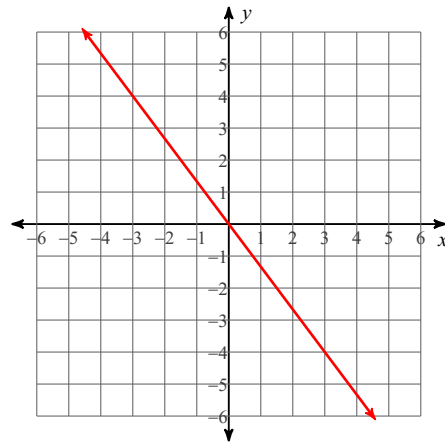
80

Sketch the graph of each line.

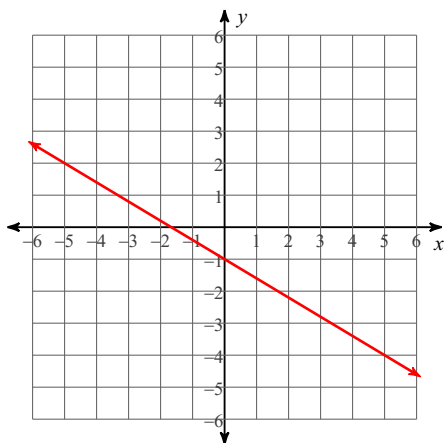
79) $7x - 5y = -25$



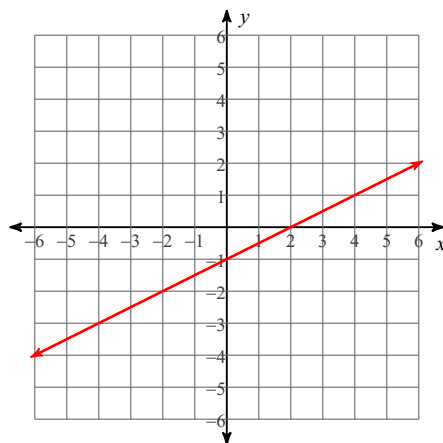
80) $4x + 3y = 0$



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

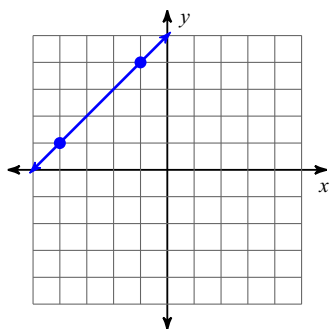


82) $x - 2y = 2$



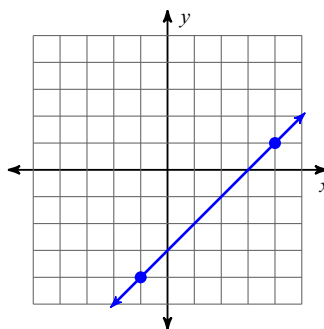
Find the slope of each line.

83)



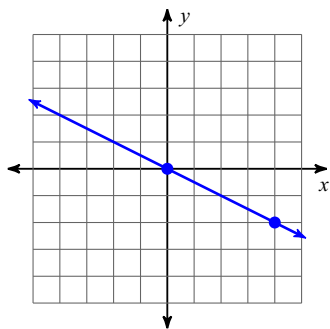
1

84)



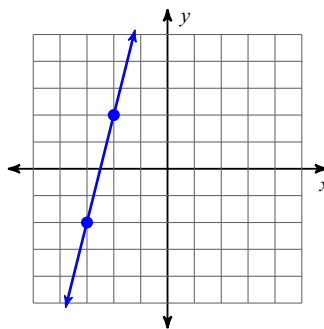
1

85)



$-\frac{1}{2}$

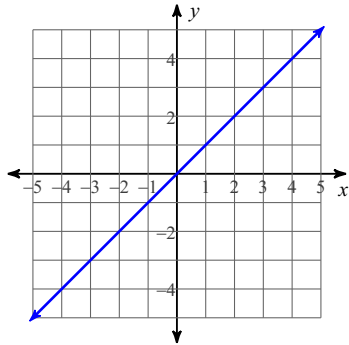
86)



4

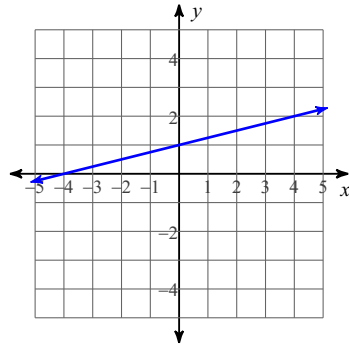
Write the slope-intercept form of the equation of each line.

87)



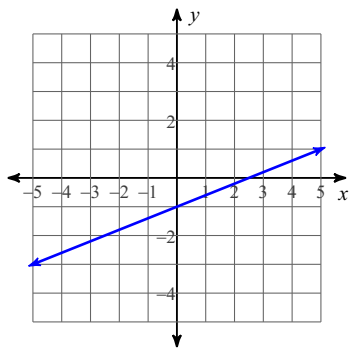
$$y = x$$

88)



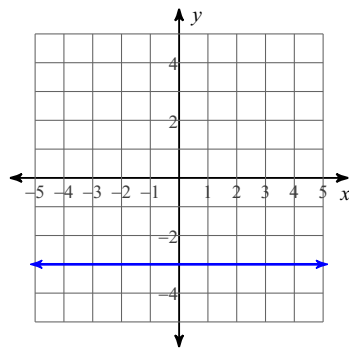
$$y = \frac{1}{4}x + 1$$

89)



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

90)



$$y = -3$$

Find each product.

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

$$3v^2 + 7v + 4$$

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

$$40k^2 + 32k - 8$$

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

$$20n^2 - 20$$

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

$$v^2 - 2v - 3$$

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

$$25n^2 - 35n + 10$$

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

$$4x^2 + 4x - 24$$

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

$$25 - 36p^2$$

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

$$25n^2 + 50n + 25$$

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

$$4n^2 - 8n + 4$$

Simplify each expression.

100) $\frac{1}{n+4} \cdot \frac{n^2 + 11n + 28}{n+10} \cdot \frac{n+7}{n+10}$

101) $\frac{1}{7n^2 + 35n} \cdot \frac{n^2 + 15n + 50}{2n} \cdot \frac{n+10}{14n^2}$

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

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

1

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

$$k^4 + 3k^3 - 5$$

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

$$3m^3 + 5m^2 + 7m - 5$$

Find each product.

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

$$4n^2 - 21n + 20$$

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

$$15x^2 - 14x - 16$$

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

$$49x^2 - 56x + 16$$

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

$$36k^2 - 1$$

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

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

1

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

2

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

3

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

-1

Solve each system by elimination.

$$114) \begin{aligned} 14x + 18y &= 26 \\ -7x - 9y &= -13 \end{aligned}$$

Infinite number of solutions

$$115) \begin{aligned} -4x - y &= -10 \\ -9x - 6y &= -15 \end{aligned}$$

(3, -2)

$$116) \begin{aligned} 10x + 2y &= 10 \\ 20x + 7y &= 20 \end{aligned}$$

(1, 0)

$$117) \begin{aligned} -6x - 4y &= -24 \\ 12x + 2y &= 30 \end{aligned}$$

(2, 3)

Solve each system by graphing.

$$118) \begin{aligned} y &= -\frac{3}{2}x - 4 \\ y &= -\frac{1}{2}x - 2 \end{aligned}$$

(-2, -1)

$$119) \begin{aligned} y &= 2x + 3 \\ y &= -\frac{3}{2}x - 4 \end{aligned}$$

(-2, -1)

Solve each system by substitution.

$$120) \begin{aligned} y &= -3 \\ -3x + 5y &= -6 \end{aligned}$$

(-3, -3)

$$121) \begin{aligned} 3x - 12y &= 5 \\ x - 4y &= 3 \end{aligned}$$

No solution

$$122) \begin{aligned} x + 5y &= -19 \\ 5x - 7y &= 1 \end{aligned}$$

(-4, -3)

$$123) \begin{aligned} x + y &= -8 \\ 2x + 3y &= -19 \end{aligned}$$

(-5, -3)

Solve each system by elimination.

$$\begin{aligned} 124) \quad & 12x + 4y = 4 \\ & -6x + 5y = 5 \\ & (0, 1) \end{aligned}$$

$$\begin{aligned} 125) \quad & x - 2y = 18 \\ & -9x - 4y = -30 \\ & (6, -6) \end{aligned}$$