

**Solve the equation, if possible.**

1.  $15x - 8 = 14x + 13$

2.  $-7a + 9 = 3a + 49$

3.  $14m - 10 = 3(4 + m)$

4.  $10d - 6 = 4d - 15 - 3d$

5.  $9n - 7 = 5n + 5$

6.  $4(w + 3) = w - 15$

7.  $7 + x = \frac{1}{2}(4x - 2)$

8.  $16p - 4 = 4(2p - 3)$

9.  $4z - 15 = 4z + 11$

10.  $0.25(8z - 4) = z + 8 - 2z$

**Write the equation in function form. (Solve for y)**

1.  $4x + y = -10$

2.  $5x - 7y = 14$

3.  $4 + 6y = 12x - 2$

4.  $6 - y = 17x$

5.  $6x - 3y = 12$

6.  $4 - 10y = 22 - 6x$

**Solve the literal equation.**

7. Solve  $R = R_1 + R_2$  for  $R_2$ .

8. Solve  $y = mx + b$  for  $m$ .

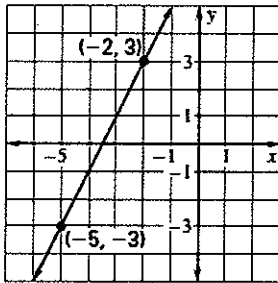
**Solve the formula for the indicated variable.**

9. Area of a trapezoid:  $A = \frac{h}{2}(b_1 + b_2)$ . Solve for  $h$ .

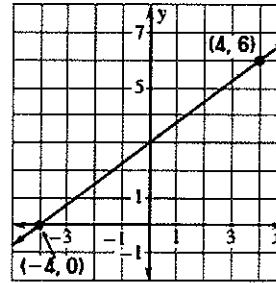
10. Area of a rhombus:  $A = \frac{1}{2}d_1d_2$ . Solve for  $d_1$ .

Write an equation of the line shown.

1.



2.



Write an equation of the line that passes through the given points.

3.  $(9, 4), (17, 6)$

4.  $(3, 28), (7, 22)$

Write an equation of the line that passes through the given point and is perpendicular to the given line.

5.  $(1, -1), y = 3x + 2$

6.  $(5, 0), y = \frac{2}{3}x - 4$

Write an equation of the line that passes through the given point and is parallel to the given line.

7.  $(3, -2), y = \frac{2}{3}x + 1$

8.  $(4, 7), y = 5x - 3$

**Find the distance between the two points.**

1.  $(8, 3), (10, 4)$

2.  $(0, 4), (8, 22)$

3.  $(21, 28), (25, 22)$

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

4.  $(2, 5), (4, 12)$

5.  $(8, 28), (3, 5)$

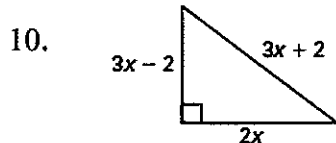
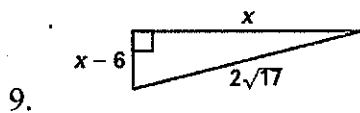
6.  $(20, 5), (30, 25)$

**Use the distance formula and the converse of the Pythagorean Theorem to determine whether the points are vertices of a right triangle.**

7.  $(1, 1), (4, 4), (1, 4)$

8.  $(6, 4), (21, 22), (24, 3)$

**Find the unknown lengths.**



**Simplify. If necessary, leave your answer in simplest radical form.**

1.  $\sqrt{45}$

2.  $\sqrt{500}$

3.  $\sqrt{3} \cdot \sqrt{27}$

4.  $\sqrt{5} \cdot \sqrt{30}$

5.  $\sqrt{\frac{16}{25}}$

6.  $\sqrt{\frac{18}{4}}$

7.  $\frac{\sqrt{25}}{5}$

8.  $\frac{\sqrt{45}}{\sqrt{5}}$

9.  $\frac{\sqrt{40} \cdot \sqrt{30}}{\sqrt{20}}$

10.  $5\sqrt{2} + 6\sqrt{2} - 3\sqrt{2}$

11.  $3\sqrt{8} + 3\sqrt{2} + \sqrt{18}$

12.  $4\sqrt{15} + 4\sqrt{5}$

**Solve the equation.**

1.  $x^2 - 13 = 23$

2.  $8x^2 - 128 = 0$

3.  $7x^2 - 50 = 13$

4.  $5x^2 - 200 = 205$

**Use the quadratic formula to solve the equation. Round your solutions to the nearest hundredth, if necessary.**

5.  $x^2 + 4x + 1 = 0$

6.  $x^2 + 6x - 100 = 0$

7.  $5x^2 + x - 9 = 0$

8.  $4x^2 - x - 20 = 0$

Use the quadratic function to complete the table of values.

1.

$$y = -5x^2$$

<b>x</b>	-2	-1	0	1	2
<b>y</b>	?	?	?	?	?

2.

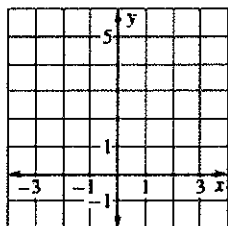
$$y = \frac{5}{2}x^2 + 1$$

<b>x</b>	-4	-2	0	2	4
<b>y</b>	?	?	?	?	?

Graph the function. Label the vertex and axis of symmetry.

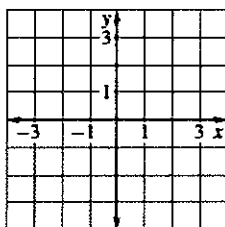
3.

$$y = 2x^2 + 3$$



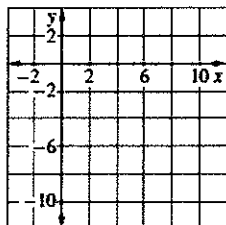
4.

$$y = -2x^2 + 2x + 1$$



5.

$$y = x^2 - 8x + 5$$



**Factor completely.**

1.  $x^2 + 8x + 7$

2.  $x^2 + 10x + 25$

3.  $x^2 + 13x + 36$

4.  $x^2 + 2x - 48$

5.  $x^2 - 14x + 40$

6.  $2x^2 + 15x + 7$

7.  $6x^2 + 7x + 2$

8.  $3x^2 - 13x + 4$

9.  $x^2 - 36$

10.  $4x^2 - 100$

11.  $9x^2 + 24x + 16$

12.  $y^2 + 24y + 144$

13.  $16x^2 - 56x + 49$

**Find the product.**

1.  $x^2(6x^2 - 3x - 1)$

2.  $(3x + 1)(2x - 5)$

3.  $(b - 8)(5b - 2)$

4.  $(2z - 7)(-z + 3)$

5.  $-5a^3(4a^4 - 3a + 1)$

6.  $(w - 3)(w^2 + 8w + 1)$

**Simplify the expression.**

7.  $a(3a + 1) + (a + 1)(a - 1)$

8.  $(m + 7)(m - 3) + (m - 4)(m + 5)$

**Find the product.**

9.  $(x - 9)^2$

10.  $(10z - 3)^2$

11.  $(m + 11)^2$

12.  $(a - 9)(a + 9)$

13.  $(4x + 3)(4x - 3)$

14.  $(5r + 1)(5r - 1)$

Solve the linear system by using substitution or elimination.

1.  $3x + 2y = 4$   
 $-6x - 4y = -8$

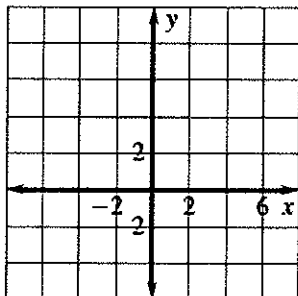
2.  $-x + 4y = -3$   
 $-3x + 2y = 1$

3.  $-x + 3y = 9$   
 $2x + y = 10$

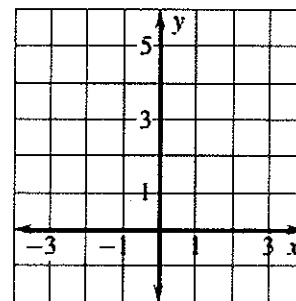
4.  $x + y = 50$   
 $-3x + 2y = 0$

Graph the inequality.

5.  $y - x < 6$



6.  $5y \leq 10x + 15$



**Solve the equation. Check your solution.**

$$1. \frac{x}{27} = \frac{3}{x}$$

$$2. \frac{4}{x-7} = \frac{2}{x}$$

$$3. \frac{8}{x+8} = \frac{x}{x+2}$$

**Find the product.**

$$4. \frac{4x^2}{15} \cdot \frac{5}{8x^5}$$

$$5. \frac{21}{2x+12} \cdot \frac{4x+24}{15}$$

$$6. \frac{5x+10}{2x-6} \cdot \frac{x-3}{10x+20}$$

$$7. \frac{x-3}{2x+8} \cdot \frac{x+4}{x^2+2x-15}$$

**Find the quotient.**

$$8. \frac{24}{5x^3} \div \frac{6}{25x^2}$$

$$9. \frac{11x^4}{18} \div \frac{22}{9x^2}$$

$$10. \frac{7x+21}{30} \div \frac{21x+63}{20}$$

$$11. \frac{x+2}{3x-3} \div \frac{x^2+11x+18}{x-1}$$