



3. Find the equation of the line in the  $xy$ -plane that contains the point  $(3, 2)$  and this is parallel to the line  $y = 4x - 1$ .

4. Find the equation of the line that contains the point  $(2, 3)$  and that is parallel to the line containing the points  $(7, 1)$  and  $(5, 6)$ .

5. Find the intersection in the  $xy$ -plane of the lines  $y = 5x + 3$  and  $y = -2x + 1$ .

6. Find the intersection in the  $xy$ -plane of the lines  $2x + 3y = 1$  and  $y = -2x + 1$ .

7. Find the equation of the line in the  $xy$ -plane that contains the point  $(4, 1)$  and that is perpendicular to the line  $y = 3x + 5$ .

8. Find the equation of the line in the  $xy$ -plane that contains the point  $(-2, 4)$  and that is perpendicular to the line  $y = 9x - 1$ .

9. Where does the line in the  $xy$ -plane given by the equation

$$\frac{x}{4} + \frac{y}{3} = 1$$

intersect the  $x$ -axis? The  $y$ -axis?

10. Suppose  $a$  and  $b$  are nonzero real numbers. Where does the line in the  $xy$ -plane given by the equation

$$\frac{x}{a} + \frac{y}{b} = 1$$

intersect the  $x$ -axis? The  $y$ -axis?

11. Let  $f(x) = 2x^2 - 16x + 8$ .

(a) Write  $f(x)$  in the form  $a(x - h)^2 + k$ .

(b) Find the value of  $x$  where  $f(x)$  attains its minimum or maximum value.

12. Let  $f(x) = 5x^2 + 10x + 15$ .

(a) Write  $f(x)$  in the form  $a(x - h)^2 + k$ .

(b) Find the value of  $x$  where  $f(x)$  attains its minimum or maximum value.

13. Let  $f(x) = x^2 - \frac{x}{3} + 1$ .

(a) Write  $f(x)$  in the form  $a(x - h)^2 + k$ .

(b) Find the value of  $x$  where  $f(x)$  attains its minimum or maximum value.

14. Let  $f(x) = 2x^2 + 5x + 1$ .

(a) Write  $f(x)$  in the form  $a(x - h)^2 + k$ .

(b) Find the value of  $x$  where  $f(x)$  attains its minimum or maximum value.

15. Show that every constant linear function is not a one-to-one function.

16. Suppose that  $a = 0$  or  $b = 0$ . Show that  $(a + b)^2 = a^2 + b^2$ .

17. Suppose that  $(a + b)^2 = a^2 + b^2$ . Show that  $a = 0$  or  $b = 0$ .