Worksheet 2.2-2.4 A

Determine whether the equation defines *y* as a function of *x*.

1. $(-3,4), (-3,-1), (2,-4)$
2. $x + y^2 = 9$
3. $y = \sqrt{x^2 - 3}$
4. $2x - y = 6$

Let $f(x) = 2x^2 - 3$, evaluate.

5. $f(2)$
6. $f(-2)$
7. $f(x + 1)$
8. $f(x - 2)$

Find the value or values of a in the domain of f for which $f(a)$ equals the given number.

9. $f(x) = x^2 - 2x - 9, f(a) = -1$
10. $f(x) = 4x + 7, f(a) = -21$
11. $f(x) = 3x - 5, f(a) = -20$
12. $(x) = x^2 + 4x - 9, f(a) = 3$

Find the zeros of f.

13. $f(x) = 6x + 18$
14. $f(x) = 3x - 9$
15. $f(x) = 3x^2 - 2x - 8$
16. $f(x) = 3x^2 - 13x + 12$

Find the equation that satisfies the given conditions. Write the equation in slope-intercept form.

17. Through $(-4,3)$, slope $= -2$
18. Through $(-3,5)$ and $(-5,9)$
19. Through $(2,-7)$ and $(4,-8)$
20. Through $(3,6)$, slope $= -3$

21. Write the equation of line in slope-intercept form for the line that passes through the point with coordinates $(-3,8)$ and is perpendicular to the graph $3x - 4y = 12$.

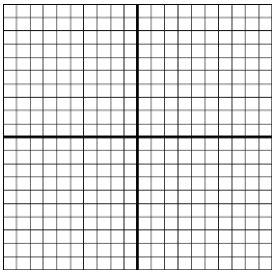
22. Write the equation of line in slope-intercept form for the line that passes through the point with coordinates $(6,-4)$ and is parallel to the graph $y = \frac{1}{3}x + 1$.

23. Write the equation of line in slope-intercept form for the line that passes through the point with coordinates $(7,-5)$ and is parallel to the graph $2x + 7y = 14$.

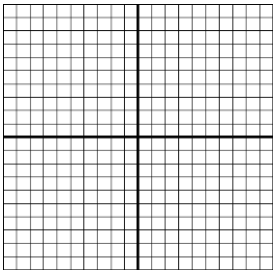
24. Write the equation of line in slope-intercept form for the line that passes through the point with coordinates $(-1,-2)$ and is perpendicular to the graph $y = \frac{1}{4}x - 5$.

Graph the function and state the axis of symmetry.

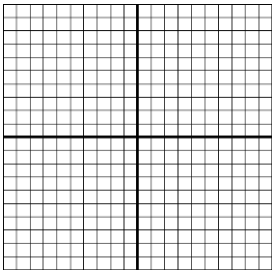
25. $y = -2x + 6$



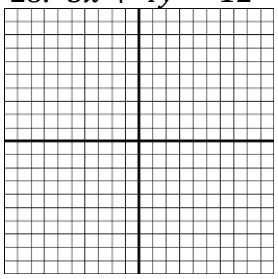
26. $-4x + 5y = 20$



27. $y = -\frac{1}{3}x - 5$



28. $3x + 4y = 12$



Write the quadratic function in vertex form.

29. $f(x) = 2x^2 - 8x + 3$

30. $f(x) = -3x^2 + 18x + 7$

31. $f(x) = -4x^2 - 8x + 5$

32. $f(x) = 5x^2 + 40x - 12$

Find the minimum or maximum value of the function. State whether this value is a minimum or a maximum.

33. $h(x) = x^2 + 8x + 12$

34. $f(x) = 4x^2 - 8$

35. $h(x) = x^2 + 2x - 24$

36. $f(x) = -3x^2 + 12x - 4$