

Practice 3.3

Write each quadratic function in vertex form by completing the square. Identify the vertex of each function.

1) $y = x^2 + 14x + 39$

2) $y = x^2 + 2x$

3) $y = x^2 + 4x + 14$

4) $y = x^2 + 18x + 78$

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

6) $y = -x^2 + 8x - 17$

$$7) f(x) = 3x^2 - 24x + 41$$

$$8) f(x) = \frac{1}{4}x^2 - \frac{9}{2}x + \frac{57}{4}$$

$$9) f(x) = -x^2 + 4x - 7$$

$$10) f(x) = 8x^2 + 96x + 281$$

$$11) f(x) = -x^2 - 14x - 49$$

$$12) f(x) = -x^2 + 12x - 30$$

Answers to Practice 3.3

1) $(-7, -10)$

5) $(-1, 2)$

9) $(2, -3)$

2) $(-1, -1)$

6) $(4, -1)$

10) $(-6, -7)$

3) $(-2, 10)$

7) $(4, -7)$

11) $(-7, 0)$

4) $(-9, -3)$

8) $(9, -6)$

12) $(6, 6)$