

A.SSE.2—Converting between Standard and Vertex Form

1) How many solutions does $y = x^2 + 4x + 15$ have and what is the vertex of the parabola?

- A) No Solutions; $(-2, 11)$
- B) 1 Solution; $(11, -2)$
- C) 2 Solutions; $(-2, 11)$
- D) 3 Solutions; $(-2, 11)$

2) Identify the vertex, axis of symmetry, and direction of opening of the function:

$$y = 2(x + 9)^2 - 2$$

- A) vertex: $(9, 2)$
axis of symmetry: $x = 9$
opens: down
- B) vertex: $(2, -9)$
axis of symmetry: $x = 2$
opens: up
- C) vertex: $(-9, -2)$
axis of symmetry: $x = -9$
opens: up
- D) vertex: $(8, 0)$
axis of symmetry: $y = 0$
opens: right

3) Which function below represents the vertex form of: $y = -x^2 - 4x - 7$.

- A) $y = -(x - 2)^2 - 3$
- B) $y = 5(x + 2)^2 + 3$
- C) $y = -(x - 3)^2 - 2$
- D) $y = -(x + 2)^2 - 3$

4) Which function below represents the standard form of: $y = 3(x + 3)^2 - 5$

A) $y = -2x^2 - 20x - 47$

B) $y = 3x^2 + 18x + 22$

C) $y = -3x^2 - 18x - 32$

D) $y = 2x^2 + 15x + 22$

5) Determine the number of solutions and identify the x-value of the vertex of: $y = x^2 + 7x + 3$.

A) 1 solution; $x = -\frac{7}{2}$

B) 2 solutions; $x = -\frac{7}{2}$

C) 2 solutions; $x = \frac{7}{2}$

D) no solutions; $x = \frac{7}{2}$