Name: Key

Converting Quadratic Equations Worksheet: Standard to Vertex

Find the vertex, axis of symmetry, and direction of opening.

1) $y = -(x-1)^2 - 1$

Vertex: $(1, -1)$
axis: $x = 1$
opens: down

2) $y = 2(x-2)^2 - 3$

Vertex: $(2, -3)$
axis: $x = 2$
opens: up

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

Vertex: $(-4, 4)$
axis: $x = -4$
opens: up

Convert the following quadratics from standard form to vertex form.

4) $y = x^2 - 8x + 15$

$\frac{8}{2 \cdot 1} = 4$

$4^2 - 8 \cdot 4 + 15 = -1$

$y = (x-4)^2 - 1$

5) $y = x^2 - 4x$

$\frac{4}{2 \cdot 1} = 2$

-4

$(2, -4)$

$y = (x-2)^2 - 4$

6) $y = x^2 + 8x + 18$

$\frac{-8}{2 \cdot 1} = -4$

2

$y = (x+4)^2 + 2$

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

$\frac{-4}{2 \cdot 1} = -2$

-1

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

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

$\frac{2}{2 \cdot 1} = 1$

$y = (x-1)^2 + 4$

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

$\frac{+8}{2 \cdot 1} = 4$

$y = (x-4)^2 + 1$