

Warm Up:

1. Which value of c would you use to complete the square?

$$x^2 - 24x + c$$

$$x^2 + 8x + c$$

2. Solve the equation by completing the square.

~~$x^2 - 4x + 4 = 9$~~ $x^2 - 8x - 1 = 8$

How can I meet today's standards?

- Solve quadratic equations by completing the square.
- Identify key features of quadratic functions by writing quadratic equations in vertex form.

Key Concept: Vertex Form

$$f(x) = a(x - h)^2 + k$$

Ex. 1: Write an Equation in Vertex Form and Identifying Key Features

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

Axis of Symmetry:

Vertex (Extrema):

Zeroes:

b) $y = -2x^2 + 20x - 42$

Axis of Symmetry:

Vertex (Extrema):

Zeroes:

c) $y = x^2 + 8x + 7$

Axis of Symmetry:

Vertex (Extrema):

Zeroes:

d) $f(x) = -3x^2 + 12x - 13$

Axis of Symmetry:

Vertex (Extrema):

Zeroes:

WATCH OUT!

When completing the square of a quadratic equation where $a \neq 0$, be sure to multiply by the coefficient before adding it to the other side.