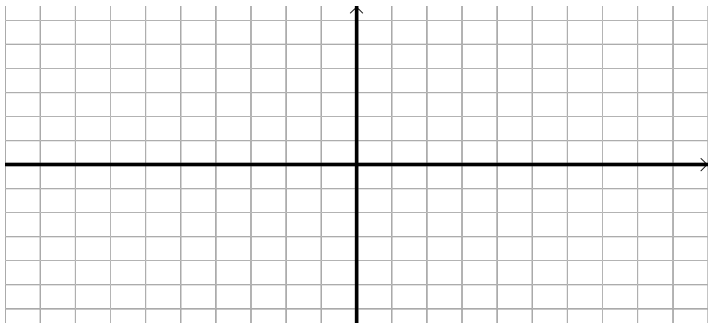# Graphing Quadratic Equations with 2 variable - Example 4

Example: Sketch the graph of:

$$y = f(x) = x^2 - 10x + 25$$

Example: Sketch the graph of:

$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:

Example: Sketch the graph of:

$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int

Example: Sketch the graph of:

$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int

$x-$int

Example: Sketch the graph of:

$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int $x-$int

vertex

Graphing Quadratic Equations with 2 variable - Example 4

Example: Sketch the graph of:

$$y = f(x) = x^2 - 10x + 25$$

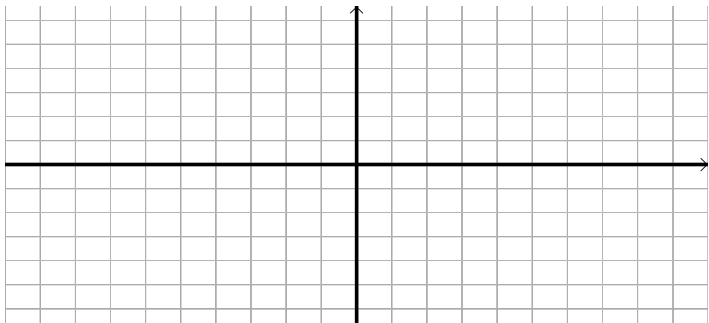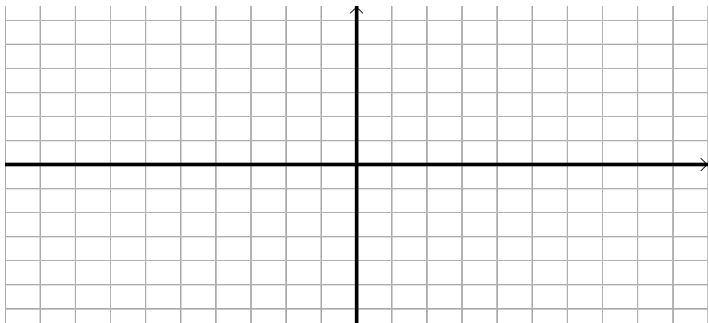▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int
$x = 0$
vertex

$x-$int

Graphing Quadratic Equations with 2 variable - Example 4

Example: Sketch the graph of:

$$y = f(x) = x^2 - 10x + 25$$

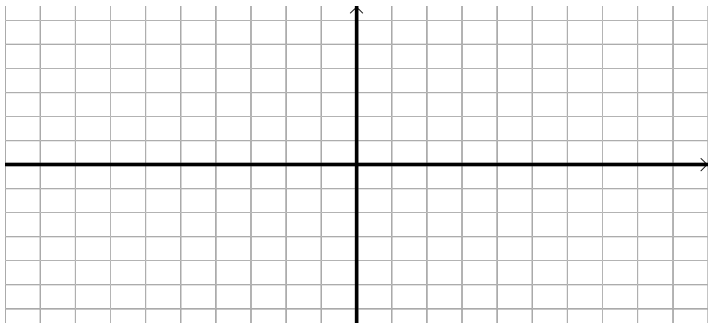▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int

$x-$int

$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25$

vertex

Graphing Quadratic Equations with 2 variable - Example 4

Example: Sketch the graph of:
$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:
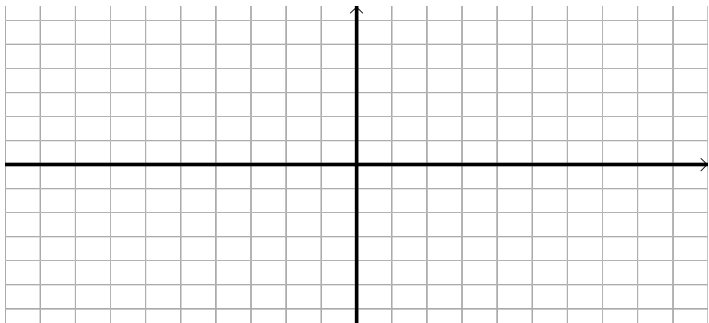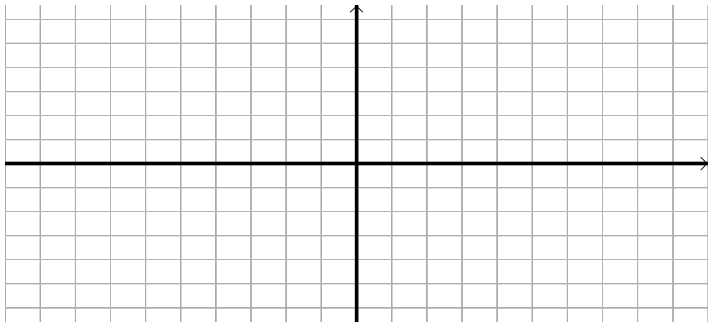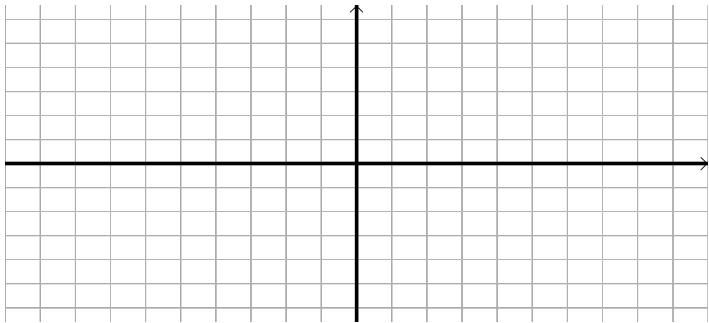
$y-$int $x-$int

$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25 = 25$

vertex

Example: Sketch the graph of:

$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int: $(0, 25)$ $x-$int

$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25 = 25$

vertex

Example: Sketch the graph of:

$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int: $(0, 25)$

$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25 = 25$

vertex

$x-$int

$y = 0$

Example: Sketch the graph of:
$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int: $(0, 25)$

$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25 = 25$
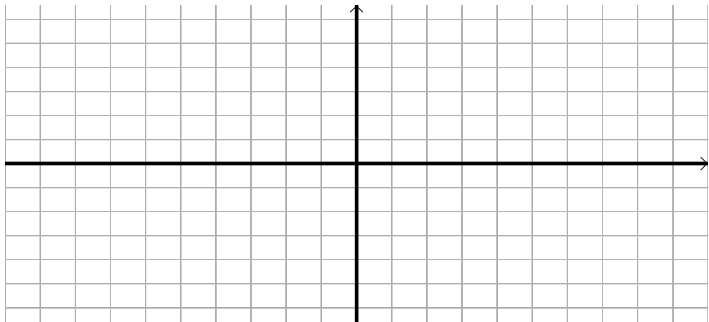
vertex

$x-$int

$y = 0 \Rightarrow 0 = x^2 - 10x + 25$

Graphing Quadratic Equations with 2 variable - Example 4

Example: Sketch the graph of:
$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:
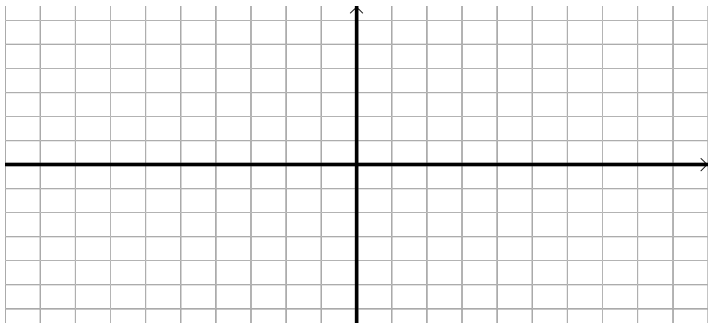
$y-$int: $(0, 25)$

$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25 = 25$

vertex

$x-$int

$y = 0 \Rightarrow 0 = x^2 - 10x + 25$

How do we solve this?

Graphing Quadratic Equations with 2 variable - Example 4

Example: Sketch the graph of:

$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int: $(0, 25)$
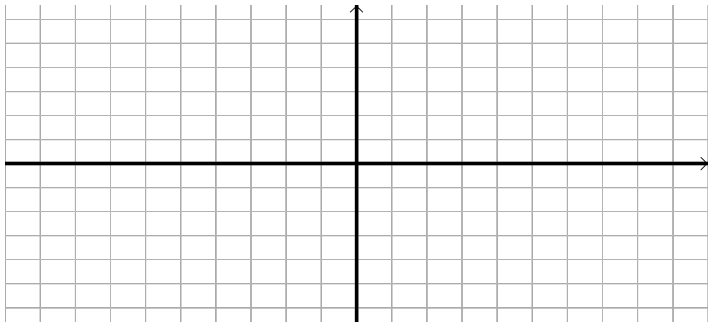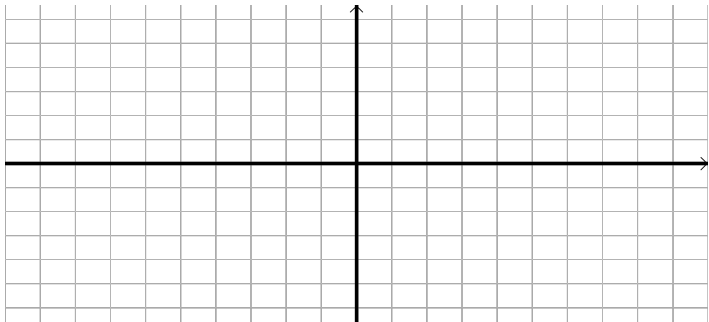$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25 = 25$
vertex

$x-$int
$y = 0 \Rightarrow 0 = x^2 - 10x + 25$
How do we solve this?
Using the ▸ Quadratic Formula

Graphing Quadratic Equations with 2 variable - Example 4

Example: Sketch the graph of:
$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int: $(0, 25)$

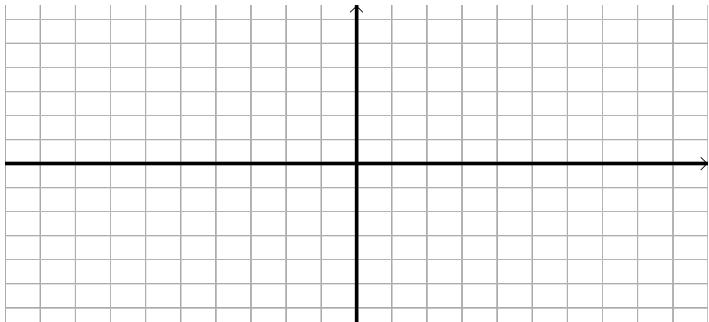$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25 = 25$

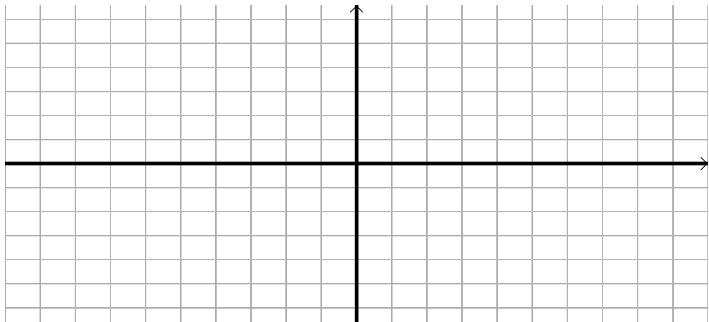vertex

$x-$int

$y = 0 \Rightarrow 0 = x^2 - 10x + 25$

How do we solve this?

Using the ▸ Quadratic Formula

$r_1, r_2 = 5, 5$

Example: Sketch the graph of:
$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int: $(0, 25)$

$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25 = 25$

vertex

$x-$int: $(5, 0) , (5, 0)$

$y = 0 \Rightarrow 0 = x^2 - 10x + 25$

How do we solve this?

Using the ▸ Quadratic Formula

$r_1, r_2 = 5, 5$

Example: Sketch the graph of:
$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int: $(0, 25)$
$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25 = 25$
vertex
h

$x-$int: $(5, 0), (5, 0)$
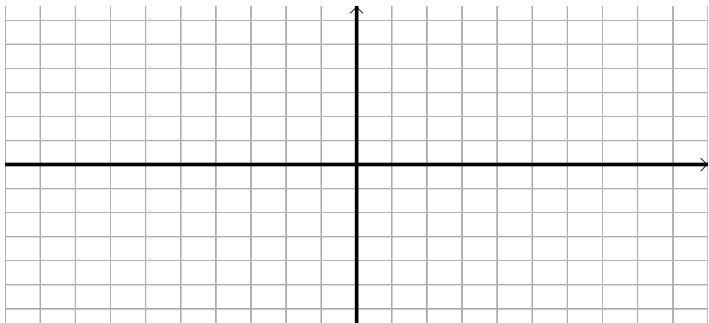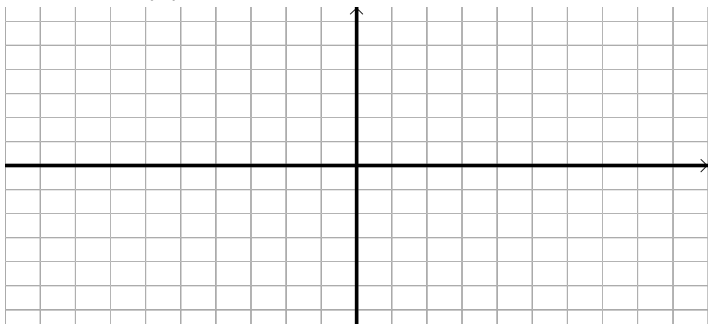$y = 0 \Rightarrow 0 = x^2 - 10x + 25$
How do we solve this?
Using the ▸ Quadratic Formula
$r_1, r_2 = 5, 5$

Graphing Quadratic Equations with 2 variable - Example 4

Example: Sketch the graph of:

$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int: $(0, 25)$
$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25 = 25$
vertex
$h = \frac{-b}{2a}$

$x-$int: $(5, 0), (5, 0)$
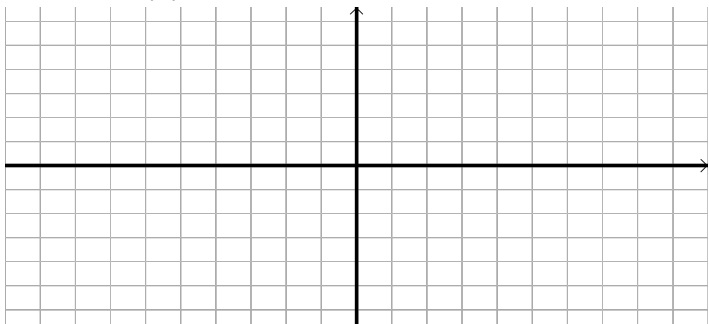$y = 0 \Rightarrow 0 = x^2 - 10x + 25$
How do we solve this?
Using the ▸ Quadratic Formula
$r_1, r_2 = 5, 5$

Graphing Quadratic Equations with 2 variable - Example 4

Example: Sketch the graph of:
$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int: $(0, 25)$

$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25 = 25$

vertex

$h = \frac{-b}{2a} = \frac{-(-10)}{2 \cdot 1}$

$x-$int: $(5, 0), (5, 0)$

$y = 0 \Rightarrow 0 = x^2 - 10x + 25$

How do we solve this?

Using the ▸ Quadratic Formula

$r_1, r_2 = 5, 5$

Example: Sketch the graph of:

$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int: $(0, 25)$

$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25 = 25$

vertex

$h = \frac{-b}{2a} = \frac{-(-10)}{2 \cdot 1} = 5$

$x-$int: $(5, 0), (5, 0)$

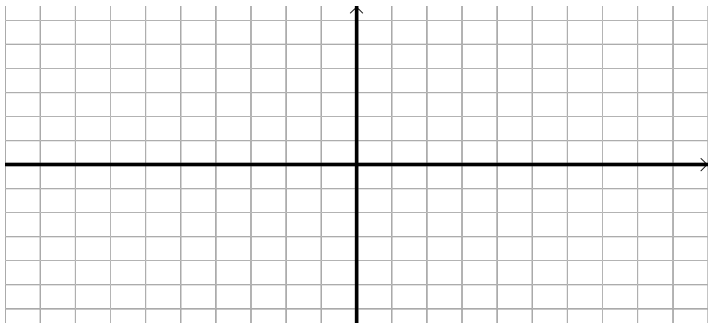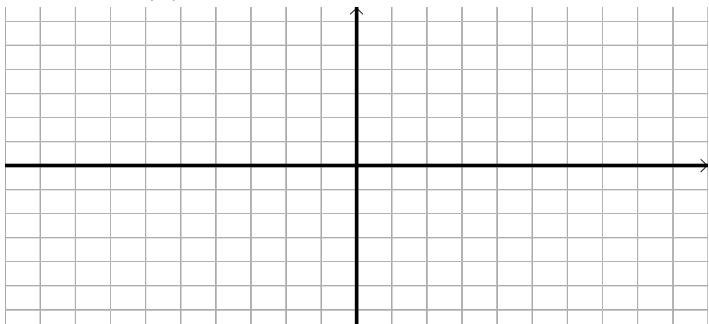$y = 0 \Rightarrow 0 = x^2 - 10x + 25$

How do we solve this?

Using the ▸ Quadratic Formula

$r_1, r_2 = 5, 5$

Graphing Quadratic Equations with 2 variable - Example 4

Example: Sketch the graph of:
$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int: $(0, 25)$

$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25 = 25$

vertex

$h = \frac{-b}{2a} = \frac{-(-10)}{2 \cdot 1} = 5$

k

$x-$int: $(5, 0), (5, 0)$

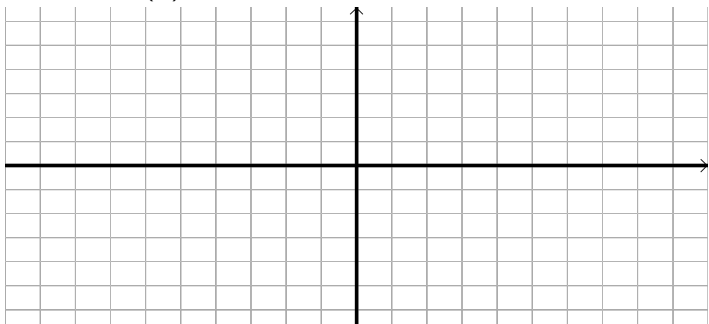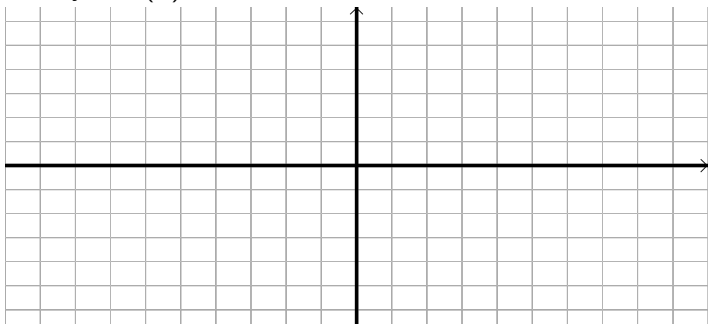$y = 0 \Rightarrow 0 = x^2 - 10x + 25$

How do we solve this?

Using the ▸ Quadratic Formula

$r_1, r_2 = 5, 5$

Example: Sketch the graph of:
$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int: $(0, 25)$

$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25 = 25$

vertex

$h = \frac{-b}{2a} = \frac{-(-10)}{2 \cdot 1} = 5$

$k = f(h)$

$x-$int: $(5, 0), (5, 0)$

$y = 0 \Rightarrow 0 = x^2 - 10x + 25$

How do we solve this?

Using the ▸ Quadratic Formula

$r_1, r_2 = 5, 5$

Graphing Quadratic Equations with 2 variable - Example 4

Example: Sketch the graph of:
$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int: $(0, 25)$

$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25 = 25$

vertex

$h = \frac{-b}{2a} = \frac{-(-10)}{2 \cdot 1} = 5$

$k = f(h) = f(5)$

$x-$int: $(5, 0), (5, 0)$

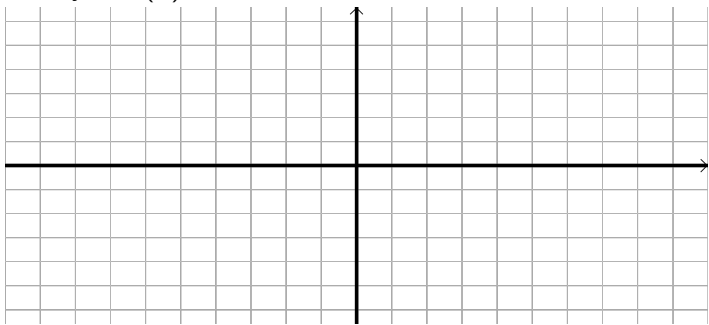$y = 0 \Rightarrow 0 = x^2 - 10x + 25$

How do we solve this?

Using the ▸ Quadratic Formula

$r_1, r_2 = 5, 5$

Graphing Quadratic Equations with 2 variable - Example 4

Example: Sketch the graph of:
$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int: $(0, 25)$

$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25 = 25$

vertex

$h = \frac{-b}{2a} = \frac{-(-10)}{2 \cdot 1} = 5$

$k = f(h) = f(5) = 0$

$x-$int: $(5, 0), (5, 0)$

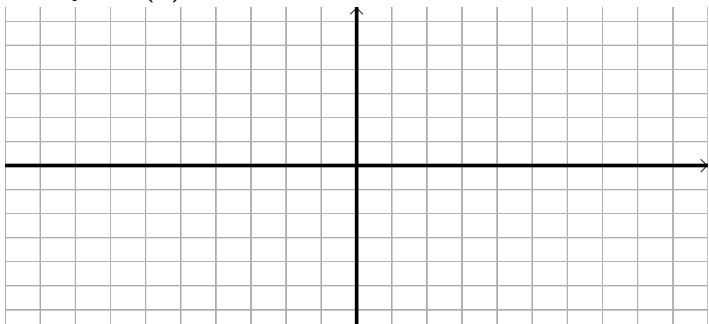$y = 0 \Rightarrow 0 = x^2 - 10x + 25$

How do we solve this?

Using the ▸ Quadratic Formula

$r_1, r_2 = 5, 5$

Graphing Quadratic Equations with 2 variable - Example 4

Example: Sketch the graph of:
$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int: $(0, 25)$

$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25 = 25$

vertex: $(5, 0)$

$h = \frac{-b}{2a} = \frac{-(-10)}{2 \cdot 1} = 5$

$k = f(h) = f(5) = 0$

$x-$int: $(5, 0), (5, 0)$

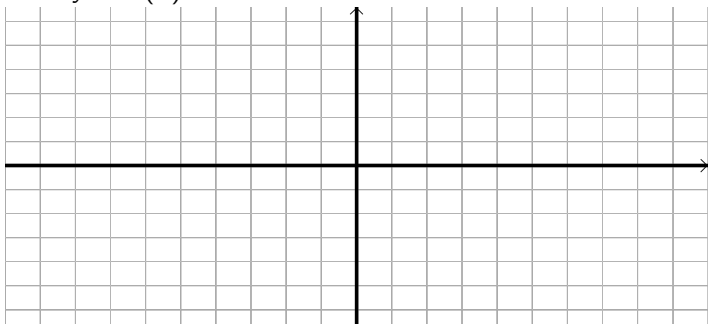$y = 0 \Rightarrow 0 = x^2 - 10x + 25$

How do we solve this?

Using the ▸ Quadratic Formula

$r_1, r_2 = 5, 5$

Example: Sketch the graph of:
$$y = f(x) = x^2 - 10x + 25$$

▶ Recall: To graph a quadratic, we need to find the important points:

$y-$int: $(0, 25)$

$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25 = 25$

vertex: $(5, 0)$

$h = \frac{-b}{2a} = \frac{-(-10)}{2 \cdot 1} = 5$

$k = f(h) = f(5) = 0$

$x-$int: $(5, 0), (5, 0)$

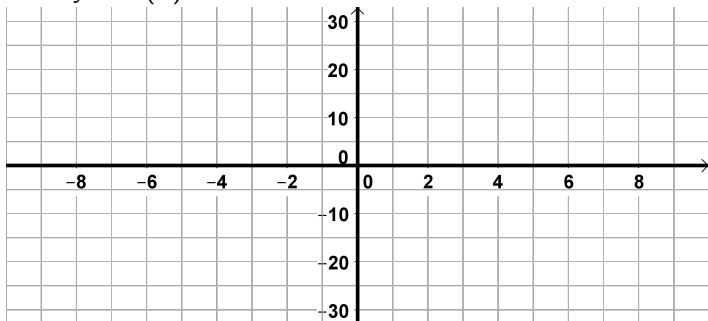$y = 0 \Rightarrow 0 = x^2 - 10x + 25$

How do we solve this?

Using the ▶ Quadratic Formula

$r_1, r_2 = 5, 5$

Example: Sketch the graph of:

$$y = f(x) = x^2 - 10x + 25$$

$(0, 25)$

▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int: $(0, 25)$

$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25 = 25$

vertex: $(5, 0)$

$h = \frac{-b}{2a} = \frac{-(-10)}{2 \cdot 1} = 5$

$k = f(h) = f(5) = 0$

$x-$int: $(5, 0), (5, 0)$

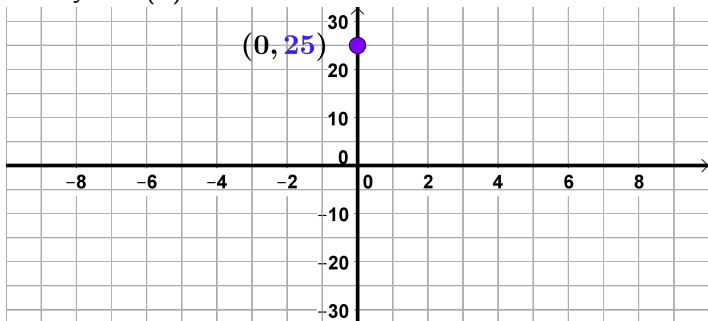$y = 0 \Rightarrow 0 = x^2 - 10x + 25$

How do we solve this?

Using the ▸ Quadratic Formula

$r_1, r_2 = 5, 5$

Example: Sketch the graph of:
$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int: $(0, 25)$

$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25 = 25$

vertex: $(5, 0)$

$h = \frac{-b}{2a} = \frac{-(-10)}{2 \cdot 1} = 5$

$k = f(h) = f(5) = 0$

$x-$int: $(5, 0), (5, 0)$

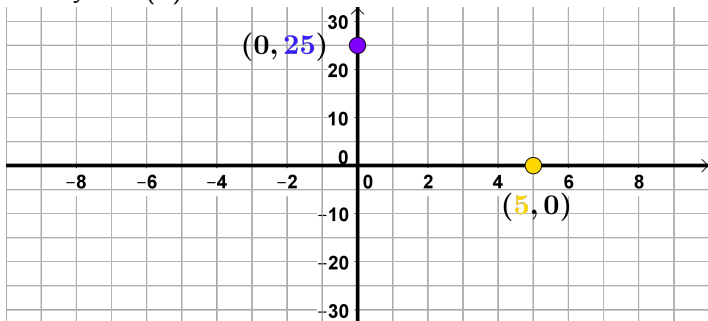$y = 0 \Rightarrow 0 = x^2 - 10x + 25$

How do we solve this?

Using the ▸ Quadratic Formula

$r_1, r_2 = 5, 5$

Example: Sketch the graph of:
$$y = f(x) = x^2 - 10x + 25$$

$(0, 25)$

$(5, 0)$
$(5, 0)$

▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int: $(0, 25)$

$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25 = 25$

vertex: $(5, 0)$

$h = \frac{-b}{2a} = \frac{-(-10)}{2 \cdot 1} = 5$

$k = f(h) = f(5) = 0$

$x-$int: $(5, 0), (5, 0)$

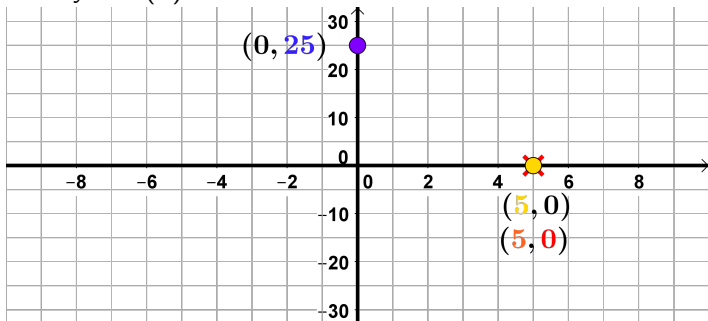$y = 0 \Rightarrow 0 = x^2 - 10x + 25$

How do we solve this?

Using the ▸ Quadratic Formula

$r_1, r_2 = 5, 5$

Graphing Quadratic Equations with 2 variable - Example 4

Example: Sketch the graph of:
$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int: $(0, 25)$

$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25 = 25$

vertex: $(5, 0)$

$h = \frac{-b}{2a} = \frac{-(-10)}{2 \cdot 1} = 5$

$k = f(h) = f(5) = 0$

$x-$int: $(5, 0), (5, 0)$

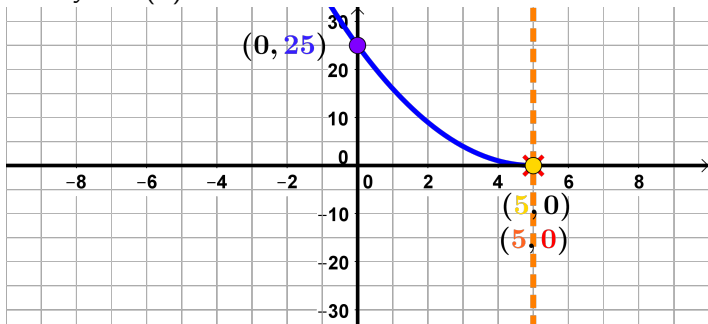$y = 0 \Rightarrow 0 = x^2 - 10x + 25$

How do we solve this?

Using the ▸ Quadratic Formula

$r_1, r_2 = 5, 5$

Graphing Quadratic Equations with 2 variable - Example 4

Example: Sketch the graph of:
$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int: $(0, 25)$

$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25 = 25$

vertex: $(5, 0)$

$h = \frac{-b}{2a} = \frac{-(-10)}{2 \cdot 1} = 5$

$k = f(h) = f(5) = 0$

$x-$int: $(5, 0), (5, 0)$

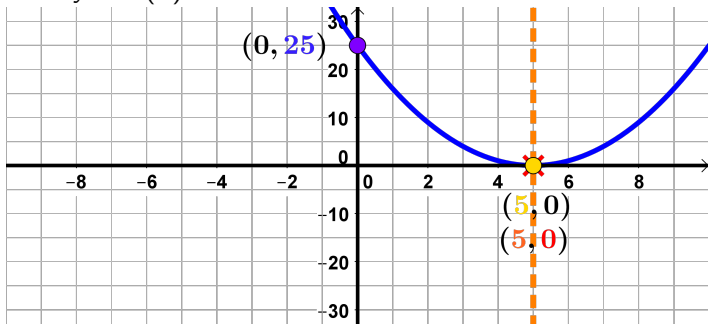$y = 0 \Rightarrow 0 = x^2 - 10x + 25$

How do we solve this?

Using the ▸ Quadratic Formula

$r_1, r_2 = 5, 5$

Graphing Quadratic Equations with 2 variable - Example 4

Example: Sketch the graph of:
$$y = f(x) = x^2 - 10x + 25$$

▸ Recall: To graph a quadratic, we need to find the important points:

$y-$int: $(0, 25)$

$x = 0 \Rightarrow y = 0^2 - 10 \cdot 0 + 25 = 25$

vertex: $(5, 0)$

$h = \frac{-b}{2a} = \frac{-(-10)}{2 \cdot 1} = 5$

$k = f(h) = f(5) = 0$

$x-$int: $(5, 0), (5, 0)$

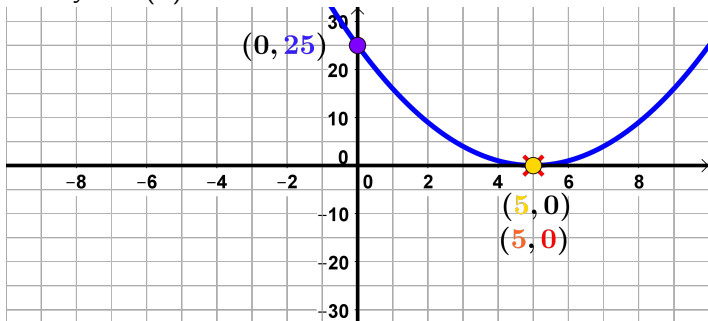$y = 0 \Rightarrow 0 = x^2 - 10x + 25$

How do we solve this?

Using the ▸ Quadratic Formula

$r_1, r_2 = 5, 5$