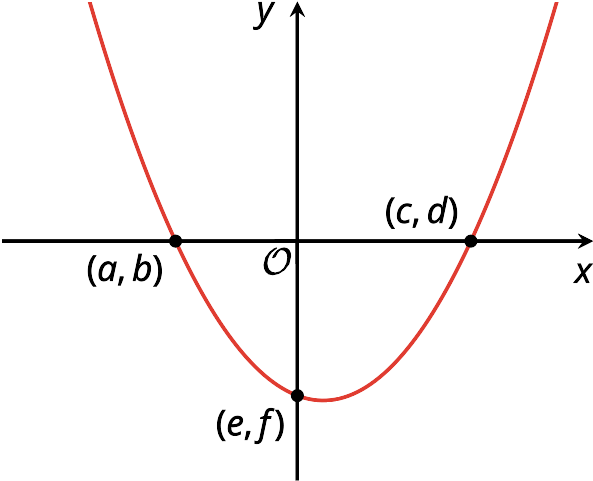
## Unit 6 Lesson 11: Graphing from the Factored Form

### 1 Finding Coordinates (Warm up)

#### Student Task Statement



Here is a graph of a function defined by . Three points on the graph are labeled.

Find the values of , and . Be prepared to explain your reasoning.

### 2 Comparing Two Graphs

#### Student Task Statement

Consider two functions defined by and .

1. Complete the table of values for each function. Then, determine the -intercepts and vertex of each graph. Be prepared to explain how you know.

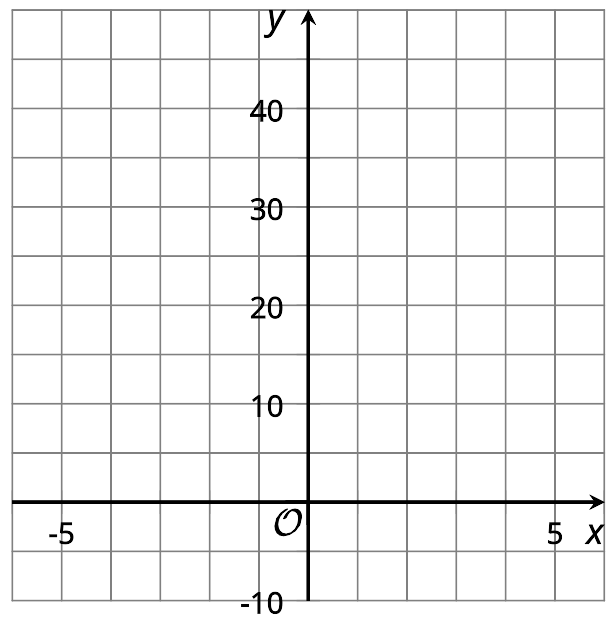
|  |  |
| --- | --- |
|  |  |
| * -5 | * 5 |
| * -4 |  |
| * -3 |  |
| * -2 | * -4 |
| * -1 | * -3 |
| * 0 |  |
| * 1 |  |
| * 2 |  |
| * 3 |  |
| * 4 | * 32 |
| * 5 |  |

* -intercepts:
* Vertex:

|  |  |
| --- | --- |
|  |  |
| * -5 | * 45 |
| * -4 |  |
| * -3 |  |
| * -2 | * 12 |
| * -1 | * 5 |
| * 0 |  |
| * 1 |  |
| * 2 |  |
| * 3 | * -3 |
| * 4 |  |
| * 5 |  |

* -intercepts:
* Vertex:

1. Plot the points from the tables on the same coordinate plane. (Consider using different colors or markings for each set of points so you can tell them apart.)

* Then, make a couple of observations about how the two graphs compare.
* 
* ​​​​​​

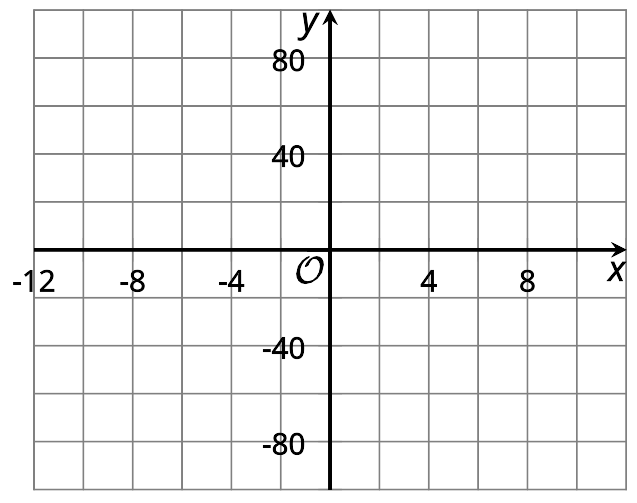
### 3 What Do We Need to Sketch a Graph?

#### Student Task Statement

1. The functions , , and are given. Predict the -intercepts and the -coordinate of the vertex of each function.

|  |  |  |
| --- | --- | --- |
| * equation | * -intercepts | * -coordinate of the vertex |
|  |  |  |
|  |  |  |
|  |  |  |

1. Use graphing technology to graph the functions , , and . Use the graphs to check your predictions.
2. Without using technology, sketch a graph that represents the equation  and that shows the -intercepts and the vertex. Think about how to find the -coordinate of the vertex. Be prepared to explain your reasoning.

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