

**TAKS Objective 1**  
**TEK A.1E**  
**Tutorial**  
**(Grades 9, 10, and 11)**

...interpret and make decisions,  
predictions, and critical judgments  
from functional relationships.

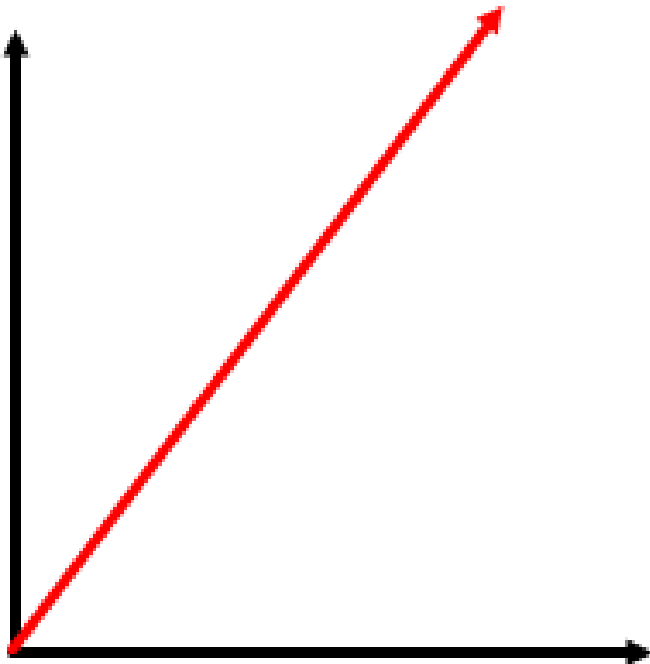
Given a graph, always read the horizontal and vertical axis labels to see how they relate to the question.

Being aware of the axis labels helps to correctly answer the question.

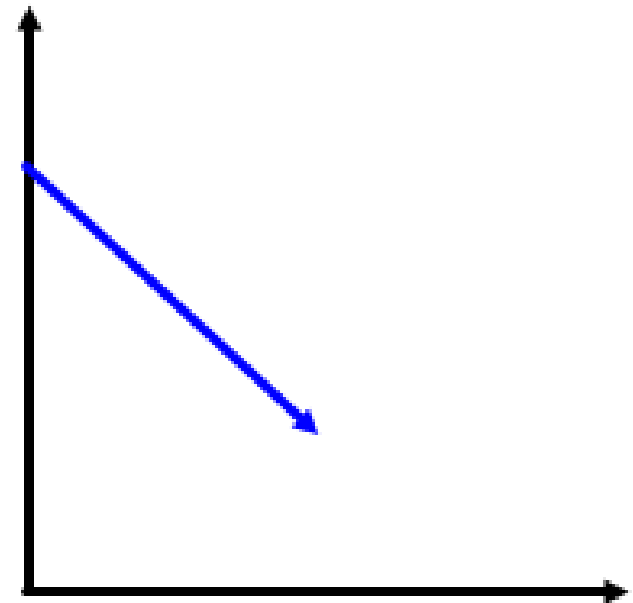
Sometimes, the axis labels are distance and time while the question asks about speed.

Reminder: Speed is the ratio of distance of time.

The **red**  
graph shows  
a constant  
increase.

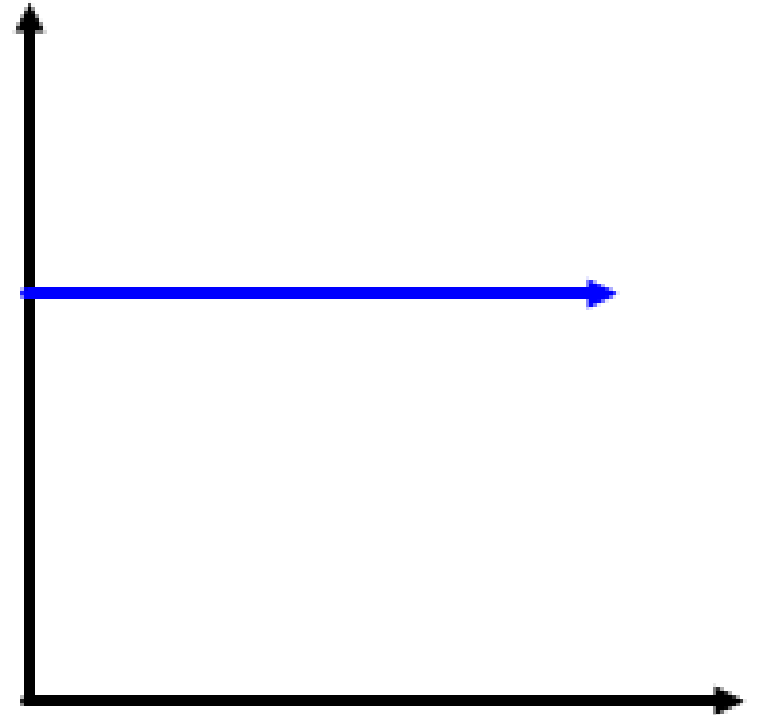


The **blue**  
graph shows  
a constant  
decrease.

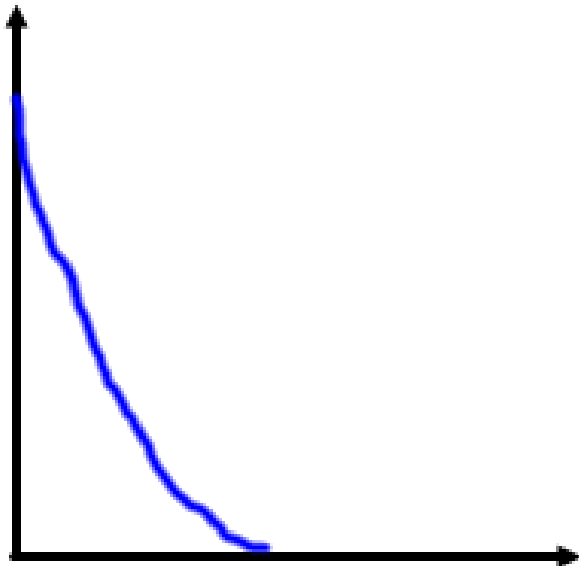


This graph shows  
a **constant** graph.

The amount  
related to the  
vertical axis  
remains the same  
while the amount  
related to the  
horizontal axis  
changes.



This graph shows a rapid, non-constant decrease.



This graph shows a rapid, non-constant increase.

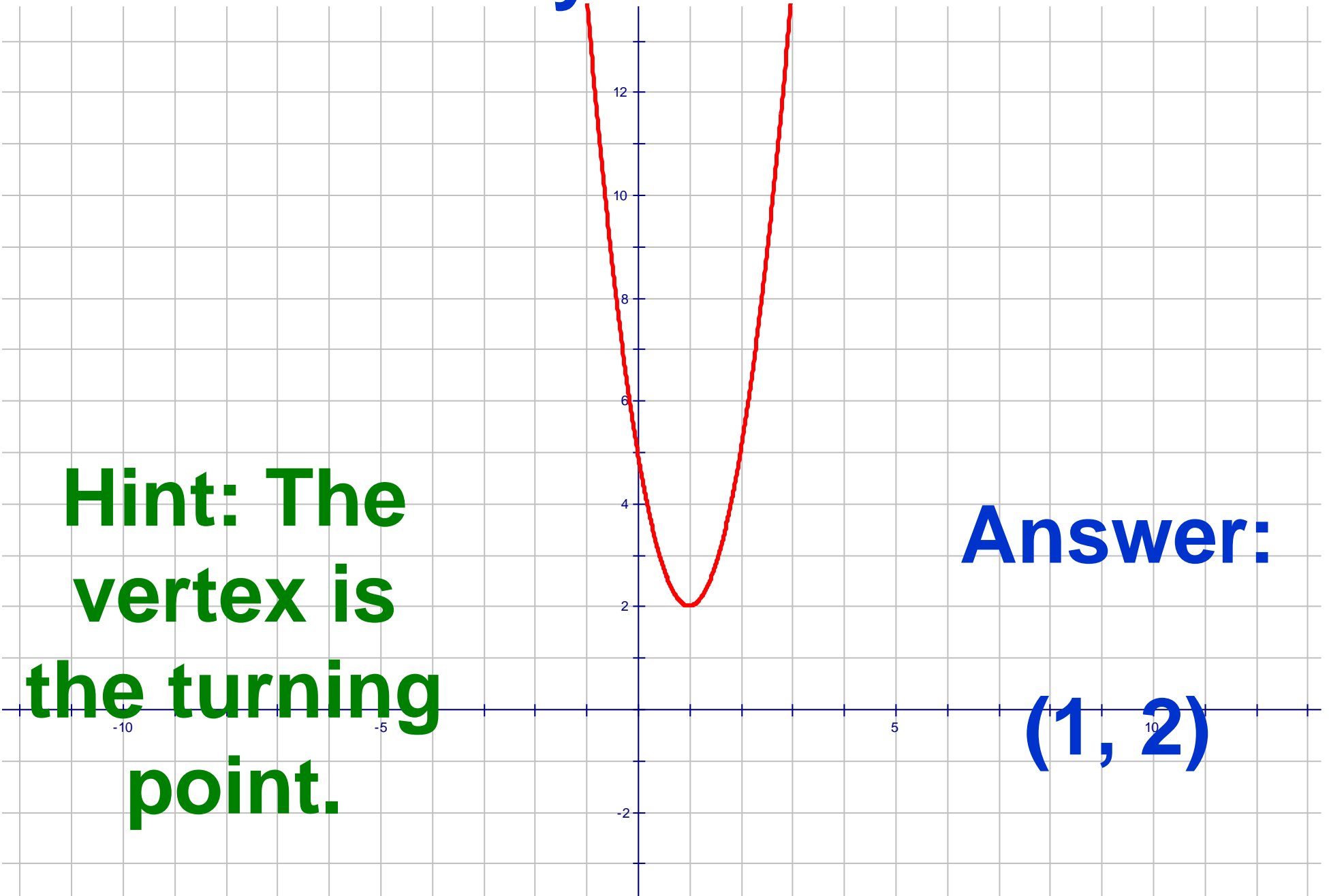


When given a parabola, you should be able to identify the following:

- the vertex,
- the minimum or maximum value,
- and
- the axis (or line) of symmetry.

# Identify the vertex.

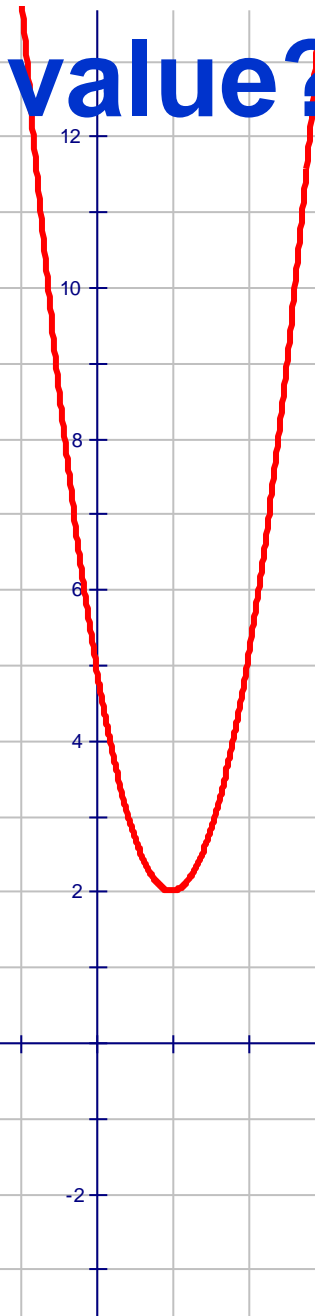
**Hint: The vertex is the turning point.**



**Answer:**

**(1, 2)**

**Does the graph have a minimum or maximum value? Where?**

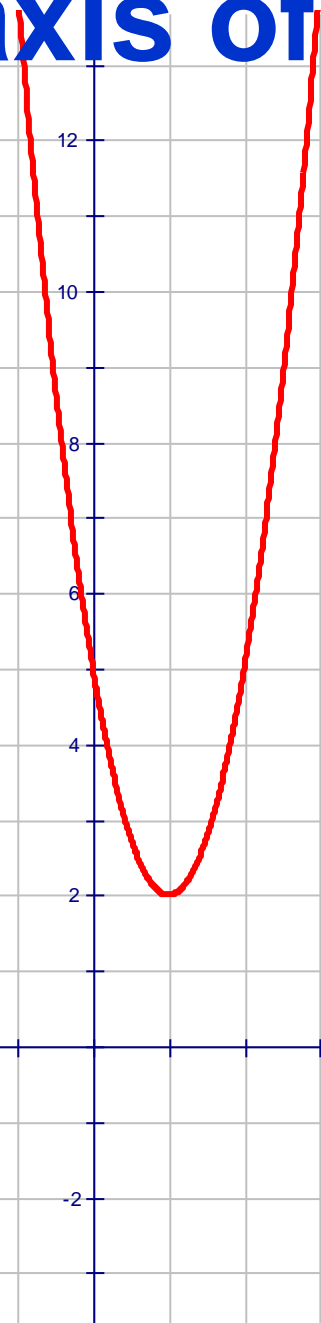


**Hint: The graph has a lowest y-value.**

**Answer:  
Minimum  
at (1, 2)**

# What is the axis of symmetry?

**Hint: The axis of symmetry cuts the graph in half and goes through the vertex.**



**Answer:**

**$x = 1$   
(the axis of symmetry crosses the x-axis at 1)**

Sometimes, an equation is given and conclusions need to be made about the x- and y- values.

Example: Given  $y = x - 5$ .

The following screens will demonstrate valid conclusions about this equation along with hints.

Given  $y = x - 5$ .

What is the verbal description of this equation?

The variable  $y$  is five less than  $x$ .

$$\text{Given } y = x - 5.$$

Provide another verbal description of this equation using the terms “independent” and “dependent”.

The dependent variable  $y$  is five less than the independent variable  $x$ .

Given  $y = x - 5$ .

What happens to the  $y$  value when the  $x$  value increases?

It increases.

Hint: Put the equation in  $y=$ . Arrow down. As you are arrowing down, the  $x$ -values are increasing. What is happening to the  $y$ -values?

Given  $y = x - 5$ .

True or False?

When the value of  $x$  is positive, the value of  $y$  is also positive.

False

Hint: Put the equation in  $y=$  and look at the table. When  $x = 1$ ,  $y = -4$ .