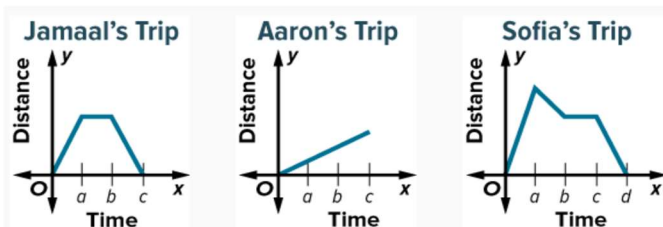


Warm Up:



1. The distance between a and b on Jamaal's graph is constant. What does that mean?
2. Jamaal's graph shows a distance of 0 at time c . What does that mean?
3. Sofia's graph goes up more steeply than Jamaal's or Aaron's. What does that mean?
4. Describe Aaron's trip.
5. Did Jamaal walk faster than Aaron? How do you know?

Speak Like A Mathematician:

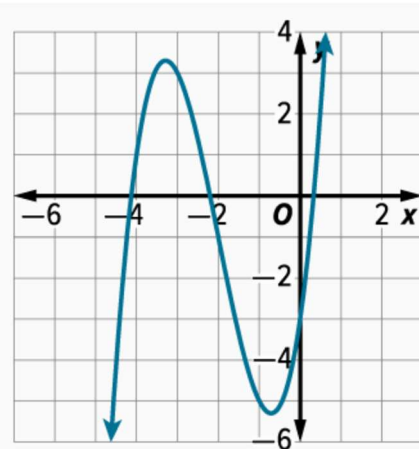
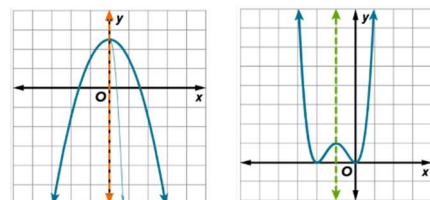
line symmetry: a figure has line symmetry if it were to be _____ in half, one side would _____ the other side exactly.

increasing: where the _____ of a function goes _____ from _____ to _____.

decreasing: where the _____ of a function goes _____ from _____ to _____.

extrema: points that have _____ or _____ function values.

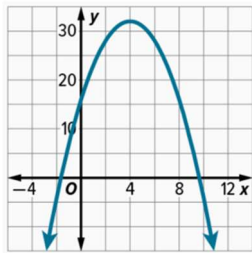
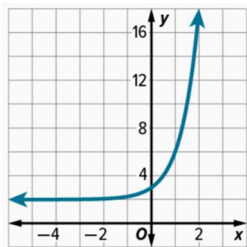
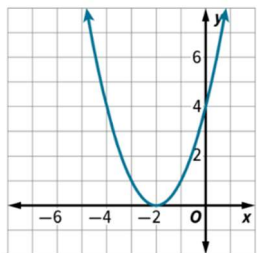
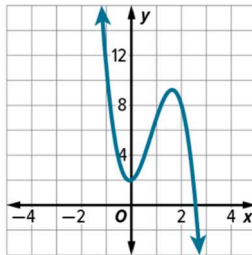
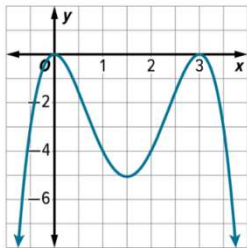
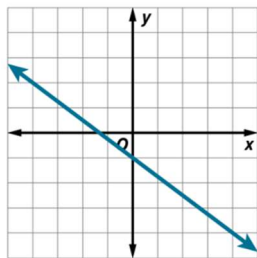
end behavior: the behavior of the graph at the _____ and _____ extremes in its _____.



SC Algebra 1
3.5 Shapes of Graphs

Example 1: Lines of Symmetry

Use the graph to draw the line of symmetry, if any.

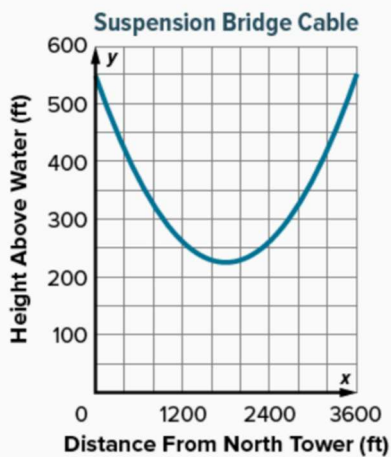


Example 2: Interpreting Lines of Symmetry



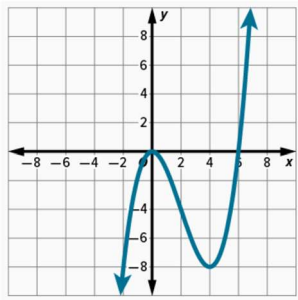
The graph represents the height y in feet that the main cables of a suspension bridge are above the water x feet from the north tower.

Describe and interpret any symmetry in the graph of the function.



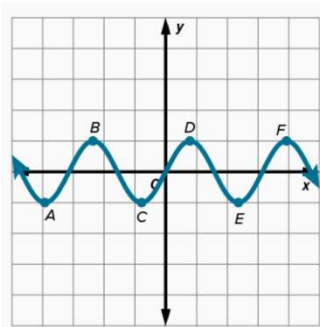
Example 3: Determine Increasing and Decreasing Parts of the Graph of a Function

Over which intervals is the graph increasing? Decreasing?



Example 4: Identify Extrema in a Graph

Identify the points on the graph that are relative minima and relative maxima.



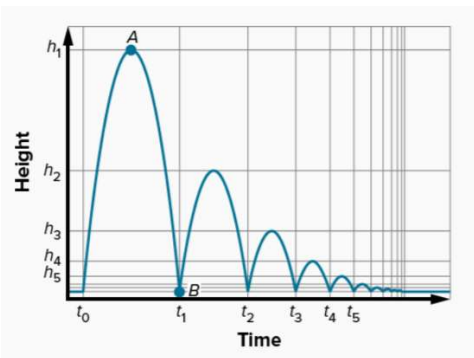
Relative Minima:

Relative Maxima:

Example 5: Interpret Extrema in the Graph of a Function

The function $f(x)$ models the height of a ball in feet given the number of seconds after it is thrown in the air.

A: Determine the extrema of $f(x)$.

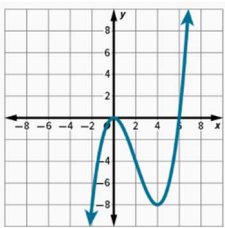


_____ is a relative maximum.
_____ is a relative minimum.

B: What does point B represent in the context of this scenario? Describe the behavior of the graph immediately before and after point B.

Example 6: Determining End Behavior in a Graph

a)



b)

