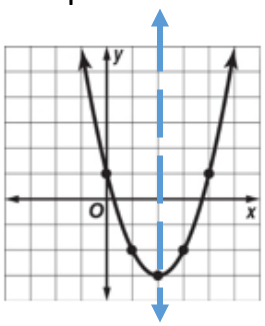
Name: _____ Date: _____ Period: _____

2.2 Axis of Symmetry and Asymptotes

The Axis of Symmetry is the vertical line that cuts through the graph, so the left side mirrors the right side. We mainly talk about the axis of symmetry for quadratic functions and other even polynomial functions.

We always write the AXIS OF SYMMETRY as x = _____

Examples are below:



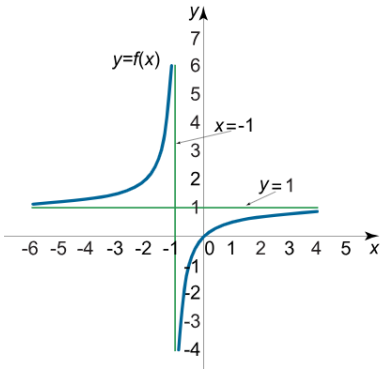
The axis of symmetry is x = 2 (drawn with a dashed line) because that is the line that cuts right through the middle of the graph (it goes through the vertex of a parabola.

The asymptote is the horizontal or vertical line that a graph approaches or gravitates toward. Some functions can have more than one asymptote.

We write vertical asymptotes as x = _____

We write horizontal asymptotes as y = _____

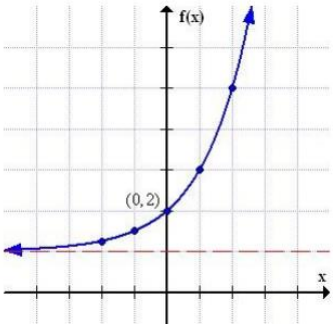
Examples are below:



The horizontal asymptote of the graph to the left is y = 1.

The vertical asymptote of the graph is x = -1.

We can see that the graph is "hugging" those lines and leveling off at those places.

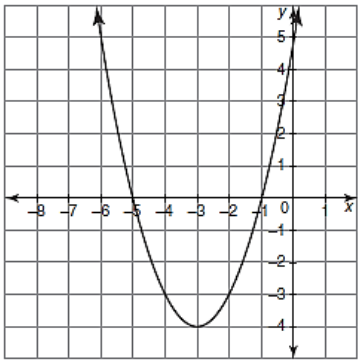


Exponential functions only have one asymptote.

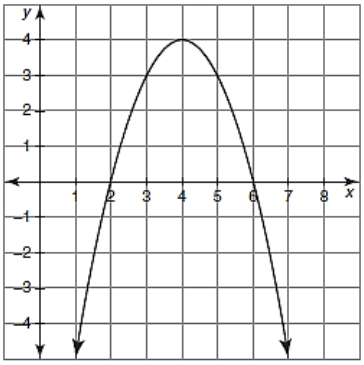
The horizontal asymptote of the graph to the left is y = 1.

Identify the axis of symmetry for each of the graphs below.

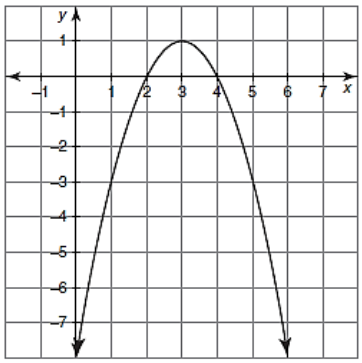
1. Axis of Symmetry:



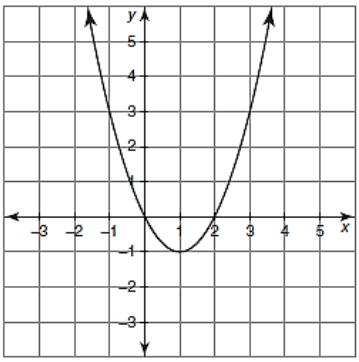
2. Axis of Symmetry:



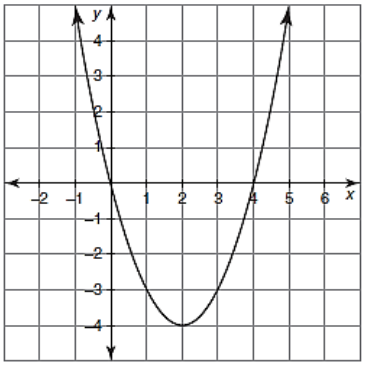
3. Axis of Symmetry:



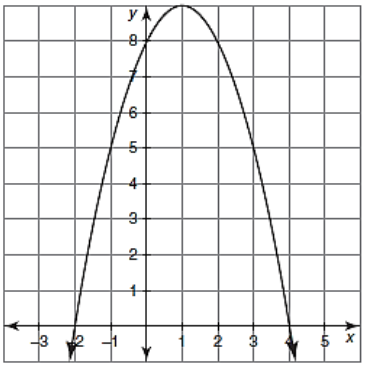
4. Axis of Symmetry:



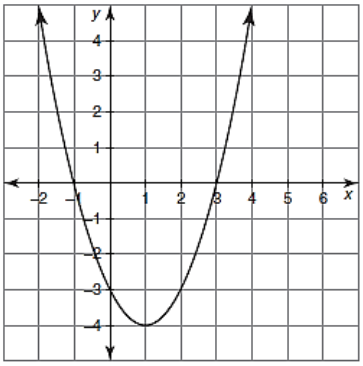
5. Axis of Symmetry:



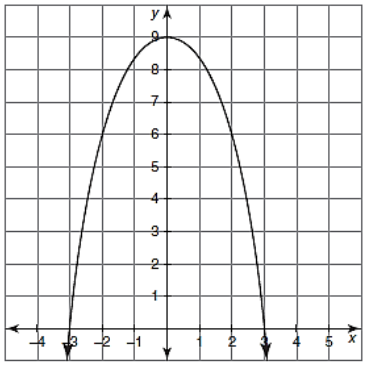
6. Axis of Symmetry:



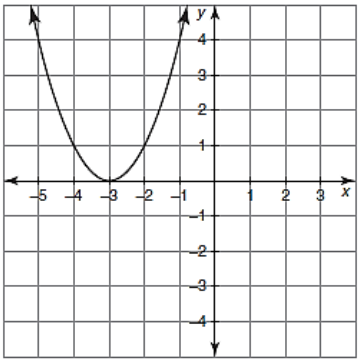
7. Axis of Symmetry:



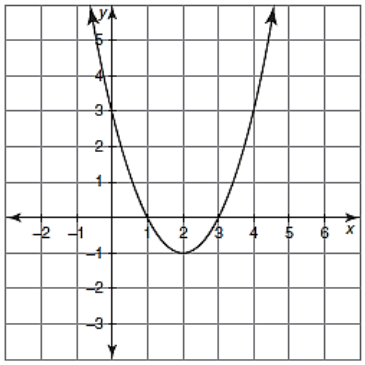
8. Axis of Symmetry:



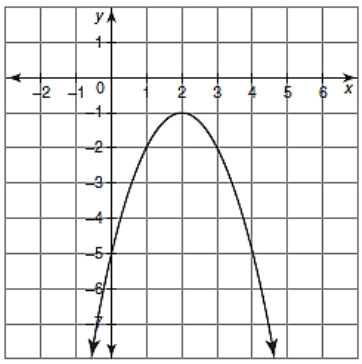
9. Axis of Symmetry:



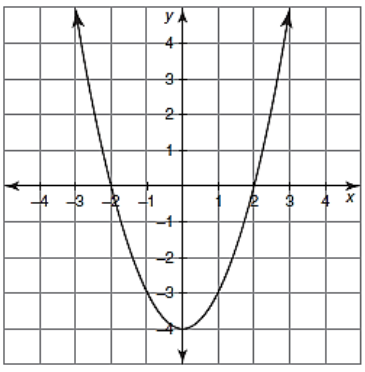
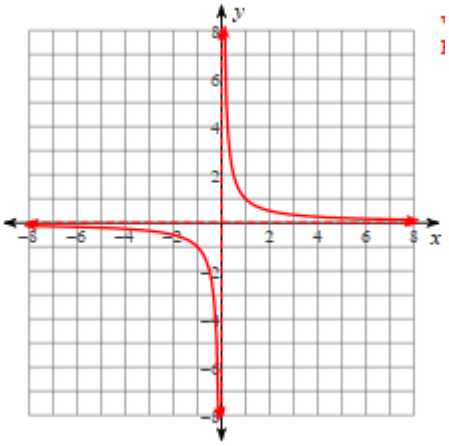
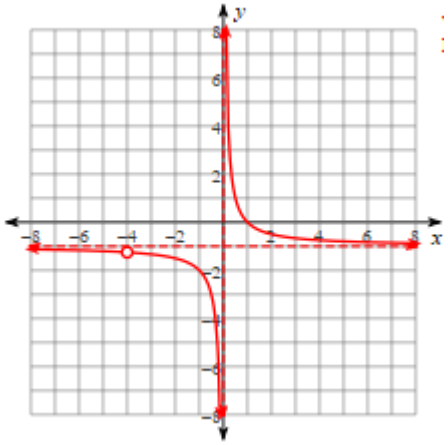
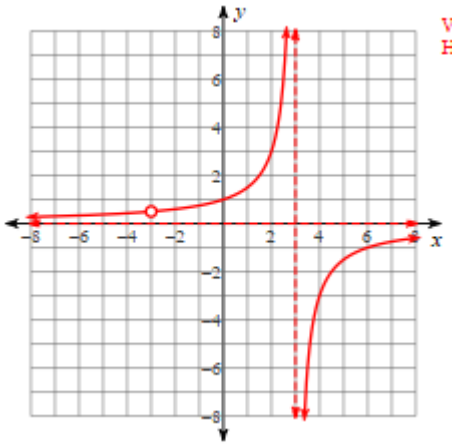
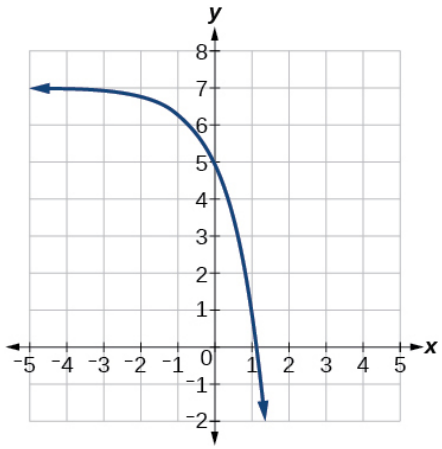
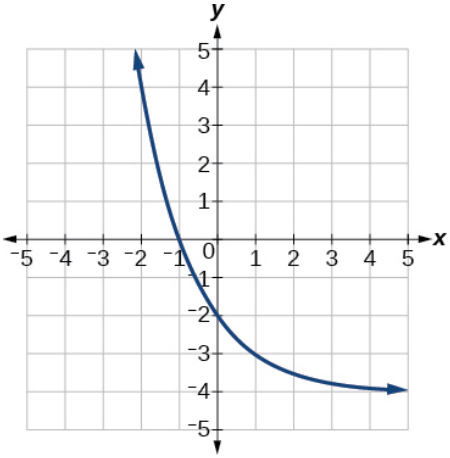
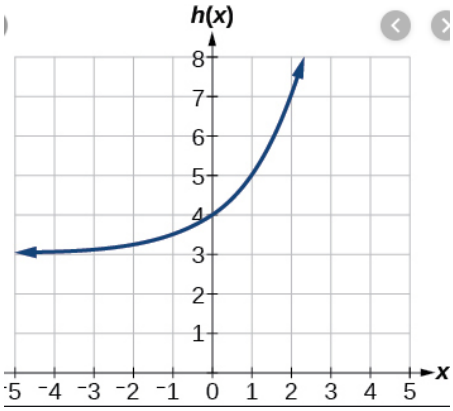
10. Axis of Symmetry:



11. Axis of Symmetry:



12. Axis of Symmetry:



Identify the asymptotes of the graphs below: