Find the domain of each function algebraically. Write your answer in interval notation.

1. $f(x) = \sqrt{x+3}$

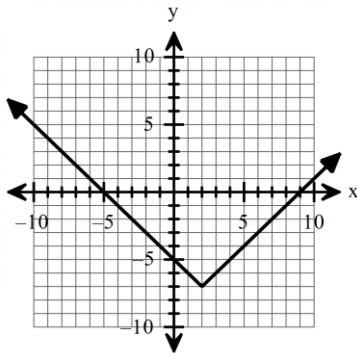4. $f(x) = \sqrt{3x+15} + 2$

2. $f(x) = x^2 + 2$

5. $f(x) = \sqrt{x-4} - 3$

3. $f(x) = \sqrt{1-x}$

6. $f(x) = (x-1)^3 + 5$

Given the graphs of functions below, determine the key features.

7.

Domain: Positive:

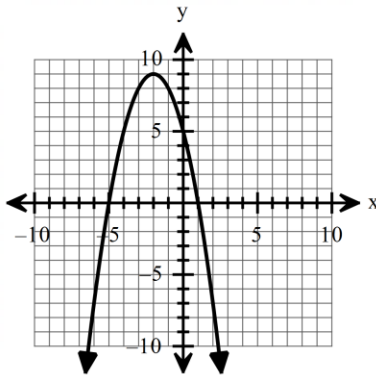Range: Negative:

x-intercept(s):   Local Min:

y-intercept: Local Max:

Increasing:

Decreasing:

8.

Domain: Positive:

Range: Negative:

x-intercept(s):   Local Min:

y-intercept: Local Max:
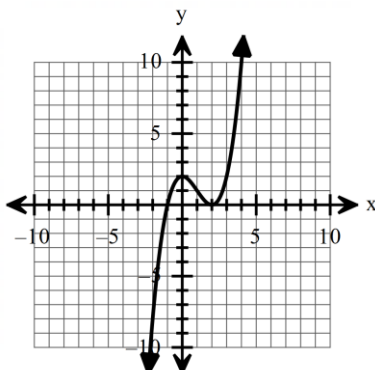
Increasing:

Decreasing:

9.

Domain: Positive:

Range: Negative:

x-intercept(s):   Local Min:
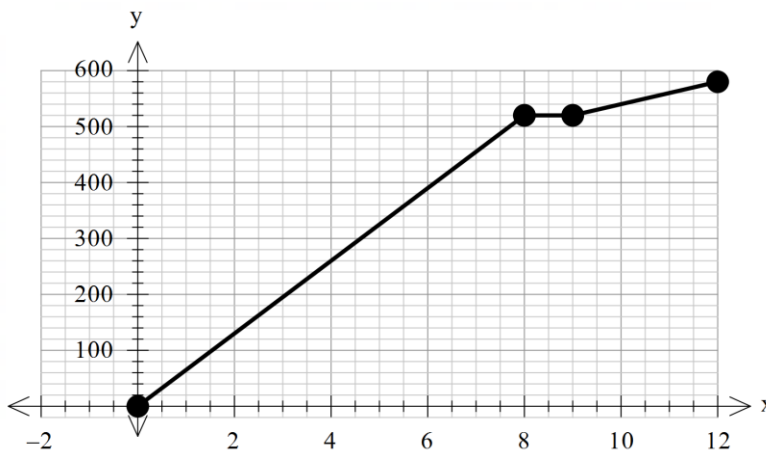
y-intercept: Local Max:
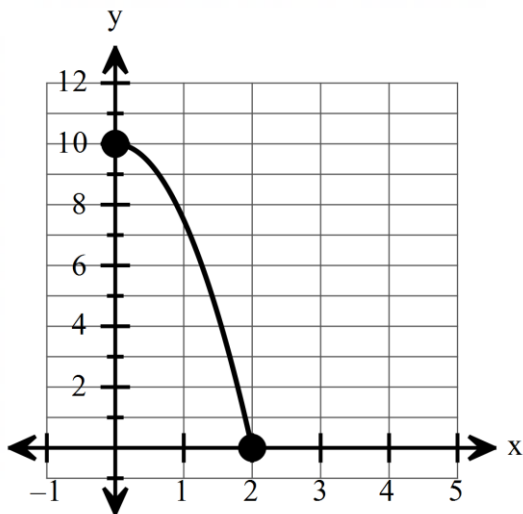
Increasing:

Decreasing:

For each graph, identify the key features. Then decide what each key feature means in the context. If the key feature does not apply to the graph write NA and explain why it does not apply to the context.

10. Your family decides to go on a road trip to Disneyland to celebrate you getting an A on your last math test. The distance travelled (in miles) is shown below. The x-axis is measured in hours.

Key Feature	What does it mean in the context?
Domain	
Range	
x-intercept(s):	
y-intercept:	
Increasing Interval(s):	
Decreasing Intervals(s):	
Local Max:	
Local Min:	
Positive Interval(s):	
Negative Interval(s):	

11. If a rock falls from a height of 10 meters on another planet, the height H (in meters) after x seconds is approximately $H(x) = 10 - 2.5x^2$.

Key Feature	What does it mean in the context?
Domain	
Range	
x-intercept(s):	
y-intercept:	
Increasing Interval(s):	
Decreasing Intervals(s):	
Local Max:	
Local Min:	
Positive Interval(s):	
Negative Interval(s):	