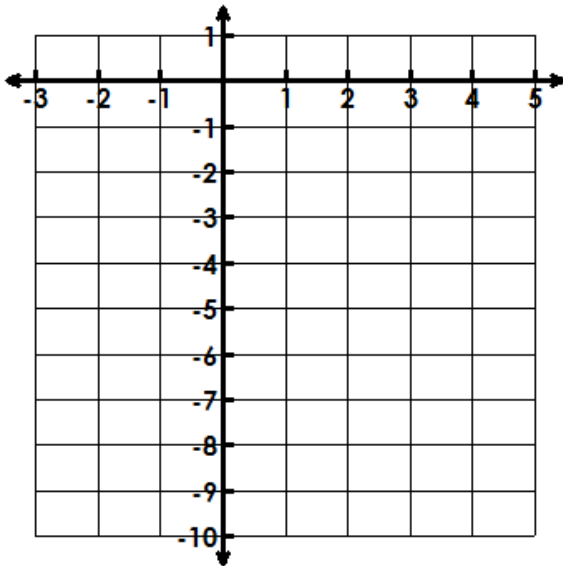


Name: \_\_\_\_\_ Date: \_\_\_\_\_

**Graph by hand.**

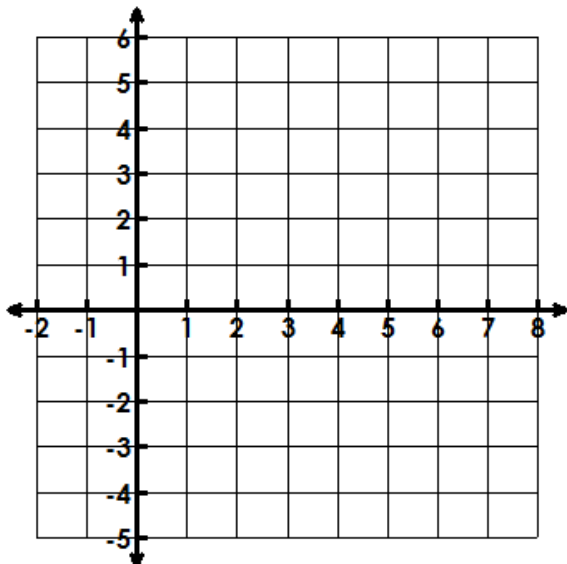
1.  $f(x) = -x^2 + 2x - 1$



Characteristics	
A.O.S.	
Vertex:	
Domain:	
Range:	
x-intercept(s):	
y-intercept:	
Interval of Increase:	
Interval of Decrease:	
Rate of change from $0 \leq x \leq 2$ :	
Rate of change from $[1, 3]$ :	

**Graph by calculator.**

2.  $f(x) = x^2 - 6x + 5$



Characteristics	
A.O.S.	
Vertex:	
Domain:	
Range:	
Zeros:	
y-intercept:	
Interval of Increase:	
Interval of Decrease:	
Rate of change from $[0, 2]$ :	
Rate of change from $4 \leq x \leq 5$ :	

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**Directions:**

1. Draw a picture to represent the situation (it will be a parabola).
  2. Determine which point(s) on the graph would answer the question.
  3. Solve for the requested point.
  4. Write final answer in sentence form.
- 

3. A missile is launched along a path determined by the equation  $f(x) = -8x^2 + 216x$ , where  $f(x)$  is the height of the missile in feet  $x$  seconds after it has been launched. A plane is flying at a height of 1200 feet. Is the plane in danger? Why or why not?
- 

4. An Olympian shoots an arrow upward at a speed of 188 feet per second from a platform. The pathway of the arrow can be represented by the equation  $h(t) = -16t^2 + 188t + 12$ , where  $h$  is the height and  $t$  is the time in seconds. Describe its position at 7 seconds.
- 

5. How long is the arrow from #4 in the air?
- 

6. Brenda launches a model rocket with an initial speed of 112 feet per second. The launch can be modeled using the formula  $h(t) = -16t^2 + vt$ . When does it reach its maximum height?