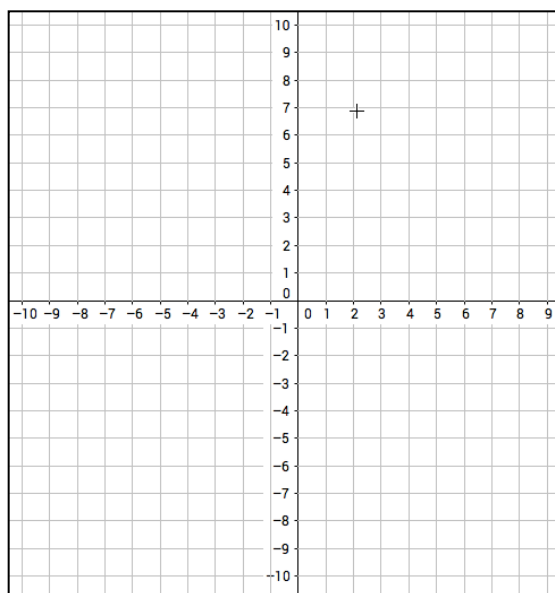


1. $f(x) = -2x^2 + 8x + 1$

- Parabola opens up or down? _____
- Location of Vertex? _____
- Is the Vertex a MIN or MAX? _____
- Equation of the Axis of Symmetry _____
- Y - Intercept _____
- A Strategic Point I used _____

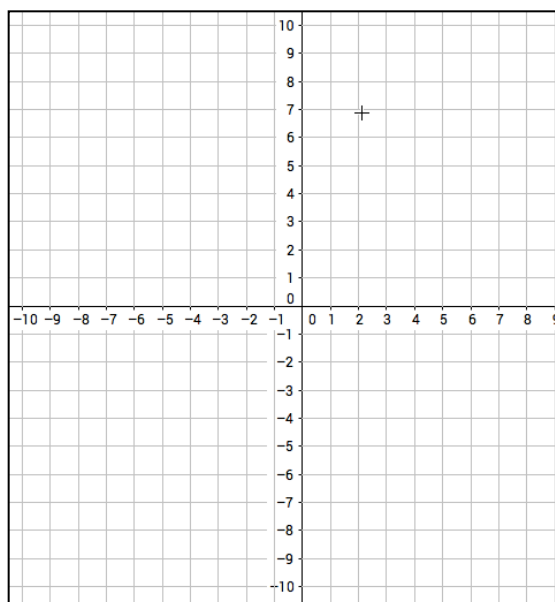
- Increasing Interval _____
- Decreasing Interval _____
- Domain _____



2. $g(x) = \frac{1}{2}(x-4)^2 - 5$

- Parabola opens up or down? _____
- Location of Vertex? _____
- Is the Vertex a MIN or MAX? _____
- Equation of the Axis of Symmetry _____
- Y - Intercept _____
- A Strategic Point I used _____

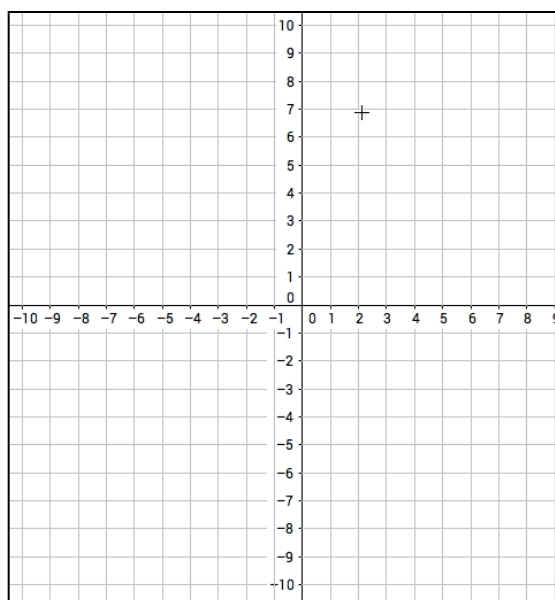
- Increasing Interval _____
- Decreasing Interval _____
- Domain _____



3. $h(x) = (x-3)(x+1)$

- Parabola opens up or down? _____
- X - intercepts _____
- Location of Vertex? _____
- Is the Vertex a MIN or MAX? _____
- Equation of the Axis of Symmetry _____
- Y - Intercept _____
- A Strategic Point I used _____

- Increasing Interval _____
- Decreasing Interval _____
- Domain _____



4. A bird is descending toward a lake to catch a fish. The bird's flight can be modeled by the equation $h(t) = t^2 - 14t + 40$, where $h(t)$ is the bird's height above the water in feet and t is the time in seconds since you saw the bird. Consider the x -axis the surface of the water and the bird can go underwater.

- Graph the function.
- How high is the bird above the water when it begins its descent? Label that on your graph.
- For how many seconds is the bird descending for?
- If the fish is only nine feet underwater, can the bird catch the fish?
- What is rate of change of the bird from the lowest depth dove to the point where the bird EXITS the water (bird exits the water at 10 seconds.)

5. The path of a water balloon can be described by the equation $h(x) = -2x^2 + 8x + 10$, where $h(x)$ is the height of the water balloon in feet and x is the number of seconds that have passed since it was launched.

Given the scenario above, what do the following points about the balloon represent. If the point makes no sense, state why.

- a. (0,10) b. (5,0) c. (2,15) d. (-1,0) e. (6,-14)

What is the implied domain of the scenario above?