



3.  $y = \frac{3}{x+1} - 4$

a) Transformations from parent function  $y = \frac{3}{x}$ :

\_\_\_\_\_

Asymptotes: \_\_\_\_\_

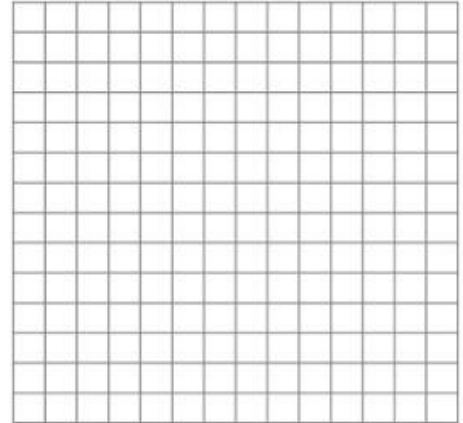
Domain: \_\_\_\_\_

Range: \_\_\_\_\_

Increasing Interval: \_\_\_\_\_

Decreasing Interval: \_\_\_\_\_

End Behavior: \_\_\_\_\_



4.  $y = \sqrt{x+2} - 1$

a) Transformations from parent function  $y = \sqrt{x}$ :

\_\_\_\_\_

Domain: \_\_\_\_\_

Range: \_\_\_\_\_

Increasing Interval: \_\_\_\_\_

Decreasing Interval: \_\_\_\_\_

End Behavior: \_\_\_\_\_



5.  $y = -\sqrt[3]{x-5} + 3$

a) Transformations from parent function  $y = \sqrt[3]{x}$ :

\_\_\_\_\_

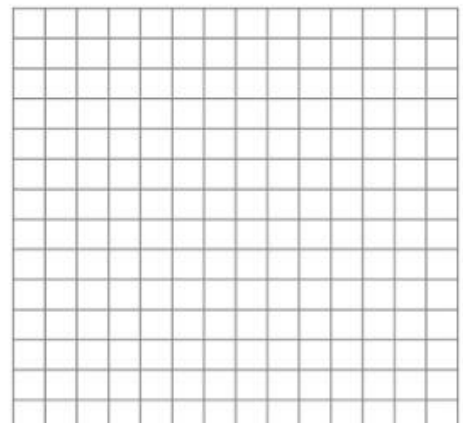
Domain: \_\_\_\_\_

Range: \_\_\_\_\_

Increasing Interval: \_\_\_\_\_

Decreasing Interval: \_\_\_\_\_

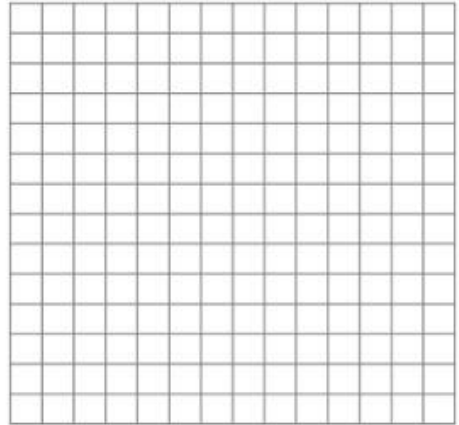
End Behavior: \_\_\_\_\_



For problems 5-7, graph and state a valid solution:

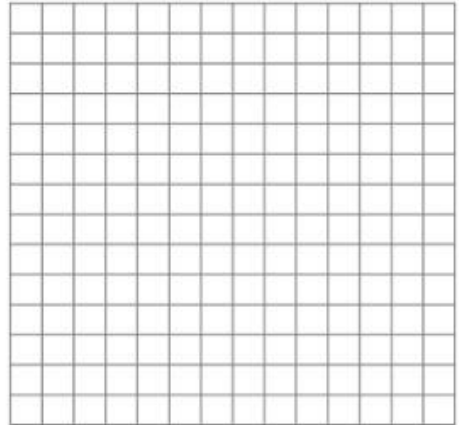
6.  $y < x^2 - 6x + 7$

Valid solution: \_\_\_\_\_



7. 
$$\begin{cases} y < -x^2 - 6x + 1 \\ y \geq -x^2 + 4x - 7 \end{cases}$$

Valid solution: \_\_\_\_\_



8. 
$$\begin{cases} y < x^2 + 10 \\ y > x + 10 \end{cases}$$

Valid solution: \_\_\_\_\_



9.  $y = \frac{1}{x-2} + 6$

a) Transformations from parent function  $y = \frac{1}{x}$ :

\_\_\_\_\_

Asymptotes: \_\_\_\_\_

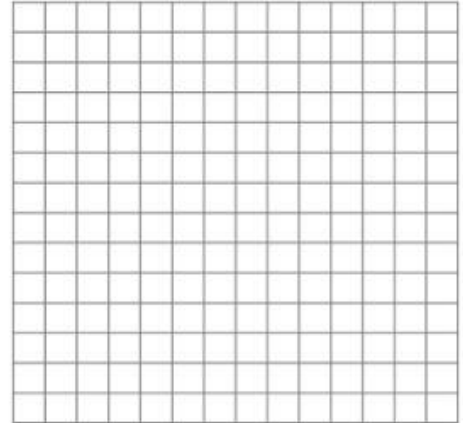
Domain: \_\_\_\_\_

Range: \_\_\_\_\_

Increasing Interval: \_\_\_\_\_

Decreasing Interval: \_\_\_\_\_

End Behavior: \_\_\_\_\_



10. A soccer ball is kicked and follows a path modeled by  $h(t) = -\frac{1}{4}t^2 + 3t$  where  $h$  is the height in feet and  $t$  is the time in seconds. The crossbar of a soccer goal is eight feet from the ground.

- a. What is the maximum height the soccer ball reaches?
  
  
  
  
  
  
  
  
  
  
- b. At what times,  $t$ , is the soccer ball low enough to score?