Name _____
Chapter 3 Test (3-1 through 3-4)

1. **Determine whether the relation represents a function. State the domain and range.**
   {(0,3), (1,5), (2,3), (3,5), (4,2)}

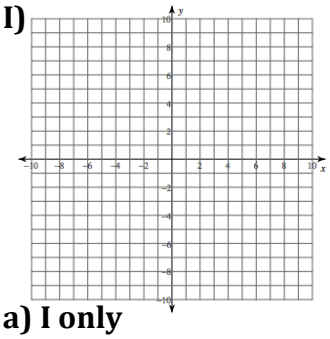
2. **Find the following for the given function: a) *f(1)*, b) *f(-3x)*, c) *f(x+1)***
   $f(x) = \dfrac{2x}{x^2}$

3. **Find the domain for the given function.**
   $f(x) = \dfrac{-3x}{x^2 - 5x - 14}$

4. **Find a) *f+g*, b), *f-g*, c) *f•g*, d) $\frac{f}{g}$ *for the pair of functions.***
   $f(x) = x - 3$ $\quad$ $g(x) = x^2$

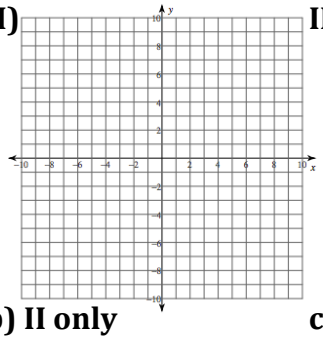
5. **Tell which of the following are graphs of functions.**

I)



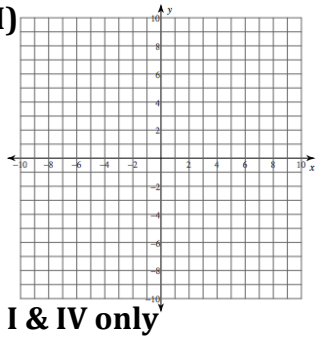
a) I only

II)



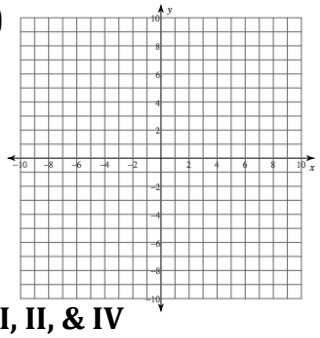
b) II only

III)



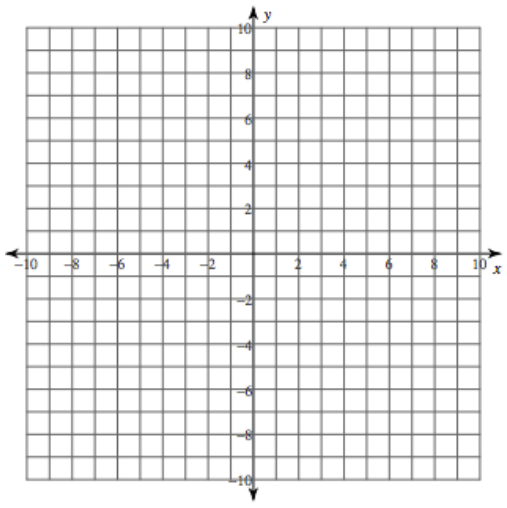
c) I & IV only

IV)

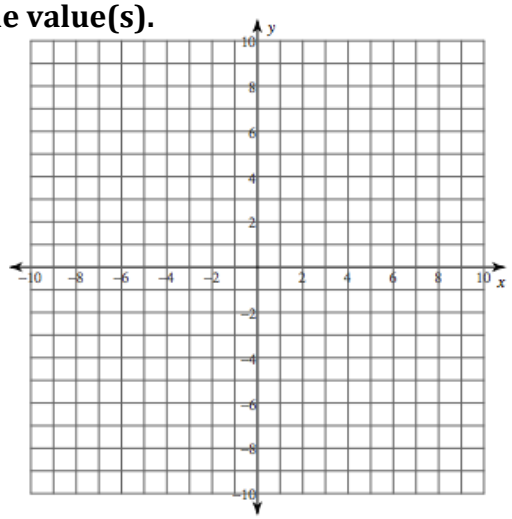


d) I, II, & IV

6. **Using the graph of the function *g* shown:**
   a) Find the domain of *g*.
   b) Find the range of *g*.
   c) For what values does *g(x)=0?*
   d) Over what interval(s) is *g(x)* positive?



7. **Use the graph of function f to:**
   a) **State the intervals over which f is increasing, decreasing, or constant.**
   b) **Find where any local maxima or local minima occur and the value(s).**
   c) **Find whether the function is even, odd, or neither.**



8. **Determine (algebraically) whether the given function is even, odd, or neither.**

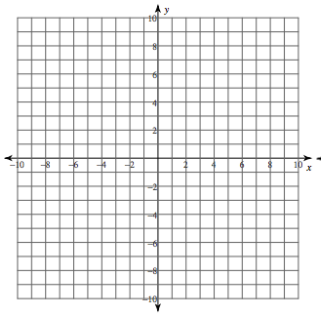
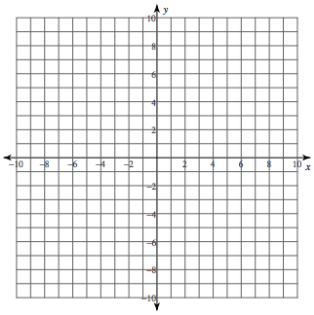
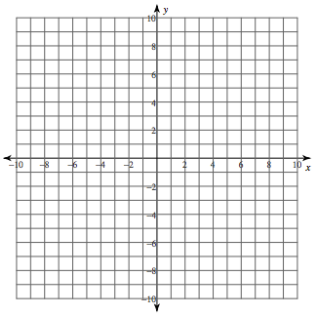
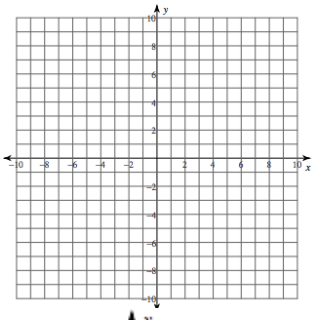
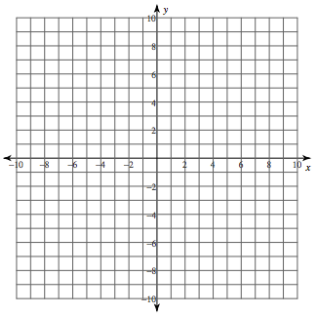
$$f(x)=\frac{x^2-1}{x}$$

9. **Find the average rate of change of f from 1 to 3.**

$f(x)=2x^2-3$

10. **Match each graph to the function listed whose graph most resembles the one given.**

I) $f(x)=x$ **II)** $f(x)=\frac{1}{x}$ **III)** $f(x)=x^2$ **IV)** $f(x)=\sqrt[3]{x}$ **V)** $f(x)=|x|$

11. **a) Graph the function**
    b) Find the domain
    c) Find the range

$$f(x)=\begin{cases} x+1 & \text{if } x<0 \\ 4 & \text{if } x=0 \\ -2x+3 & \text{if } x>0 \end{cases}$$