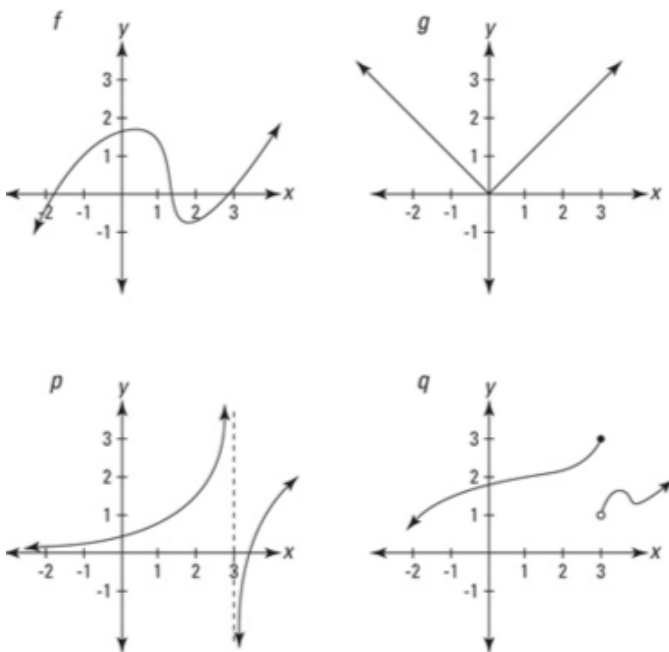
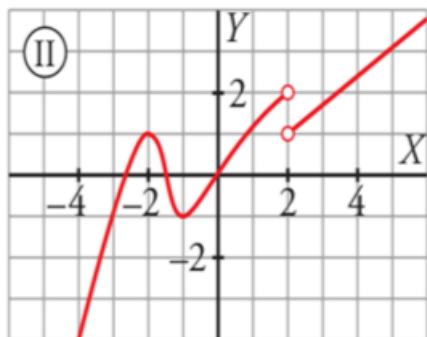
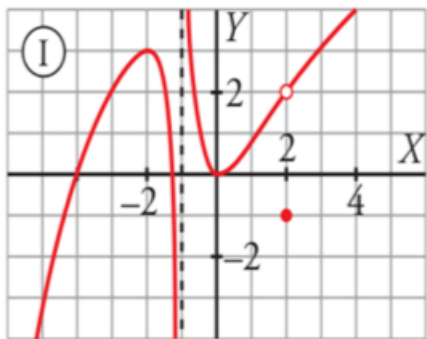


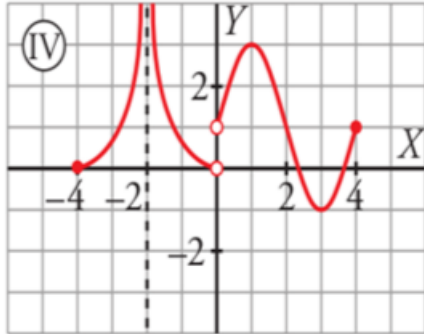
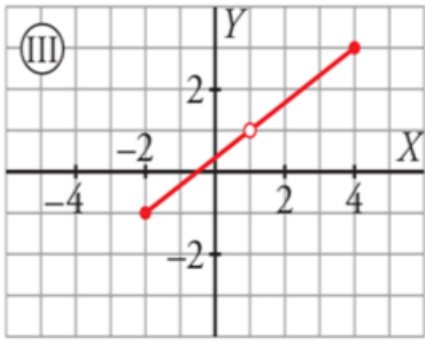
### Worksheet 49 - Function Behavior

1. Determine the domain over which each function is continuous:



2. Determine the intervals of the domain over which the function is (a) increasing, (b) decreasing, and (c) constant. State (d) the domain, (e) the range, and (f) any local maximas and minimas.





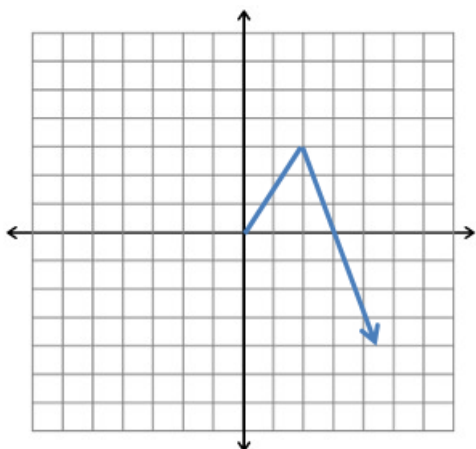
3. Graph each function in the standard viewing window of your calculator. (a) Find any local maximas and minimas. State the intervals of the domain over which the function is (a) increasing and (b) decreasing.

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

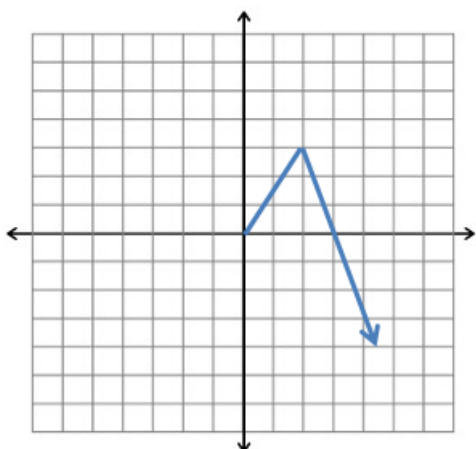
(b)  $h(x) = -\frac{1}{(x-4)^2}$

4. Complete the left half of the graph of  $y = f(x)$  in the figure for each of the following conditions:

(a)  $f$  is even.



(b)  $f$  is odd.



5. Use the definition to determine if the functions are even, odd or neither.

(a)  $f(x) = 0.72x^2 - |x| + 1$

(b)  $g(x) = -7$

(c)  $h(x) = \sqrt{x^2} + x^3$

(d)  $k(x) = \frac{1}{4x^5}$

6. Consider  $f(x) = \sqrt{x^2 - 9}$  and  $g(x) = \frac{1}{x^2 - 4}$ .

(a) What is the domain and range of  $f$ ?

(b) What is the domain of  $g$ ?

(c) Evaluate:

i.  $f(-2)$

ii.  $f(-x) - g(a)$

iii.  $\frac{g(x+h) - g(x)}{h}$

(d) Compute:

i.  $f \circ g(x)$

ii.  $g \circ f(x)$