Name_____ Date_____ Class Period_____

**Chapter 2 Test Review**

**ALL PROBLEMS MUST BE DONE ON SEPARATE PAPER.   THE REVIEW WILL NOT BE GRADED.   SHOW ALL WORK FOR CREDIT**

**1)  Determine whether the equation defines y as a function of x.**

a) $y = \frac{1}{x}$

b) $y^2 = 4 - x^2$

c) $y = \frac{4x-1}{x}$

d) $8x + x^2 - 59 = y$

e) $y^2 + x = 4$

**2)  Find the value for the function.**

a) Find f(4) when $f(x) = x^2 + 5x - 1$

b) Find f(2) when $f(x) = \frac{x^2-3}{x-1}$

c) Find f(2x) when $f(x) = \sqrt{7x^2 - 3x}$

d) Find $f(x + h)$ when $f(x) = 3x^2 - 4x - 4$

e) Find $f(x - 2)$ when $f(x) = 3x^2 + 5x + 3$

**3)** The function $P(d) = 1 + \frac{d}{33}$ gives the pressure, in atmospheres (atm), at a depth d feet in the sea. Find the pressure at 55 feet.

**4)  Find the domain of the function.**

a) $f(x) = \frac{x}{x^2+5}$

b) $h(x) = \frac{x-3}{x^3-25}$

c) $f(x) = \sqrt{10 - x}$

d) $g(x) = \frac{x}{\sqrt{x+7}}$

**5)  For the given functions f and g, find the requested function and state its domain.**

a) $f(x) = 9 - 6x;\ g(x) = -2x + 6$
Find $f + g$.

b) $f(x) = 6x - 7;\ g(x) = 9x - 8$
Find $f - g$.

c) $f(x) = 2x - 4;\ g(x) = 9x - 2$
Find $f \cdot g$.

d) $f(x) = 5x + 1;\ g(x) = 6x - 5$
Find $\frac{f}{g}$.

e) $(x) = 2x^3 - 1,\ g(x) = 4x^2 - 3$
Find $f \cdot g$.

f) $(x) = \sqrt{x}\ ;\ g(x) = 5x - 2$
Find $\frac{f}{g}$..

g) $f(x) = \sqrt{x + 5};\ g(x) = \frac{2}{x}$
Find $f \cdot g$.

h) ) $f(x) = 3x + 5;\ g(x) = 4x - 1$
Find $\frac{f}{g}$..

**6)  Find and simplify the difference quotient of f,** $\frac{f(x+h)-f(x)}{h}\ h \neq 0$ **, for the function.**
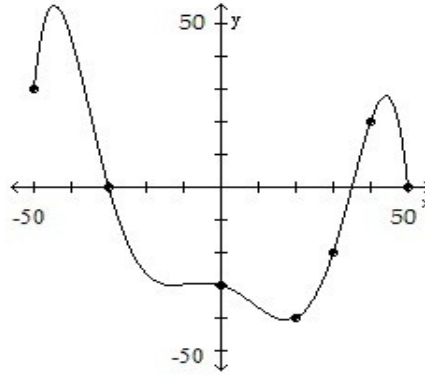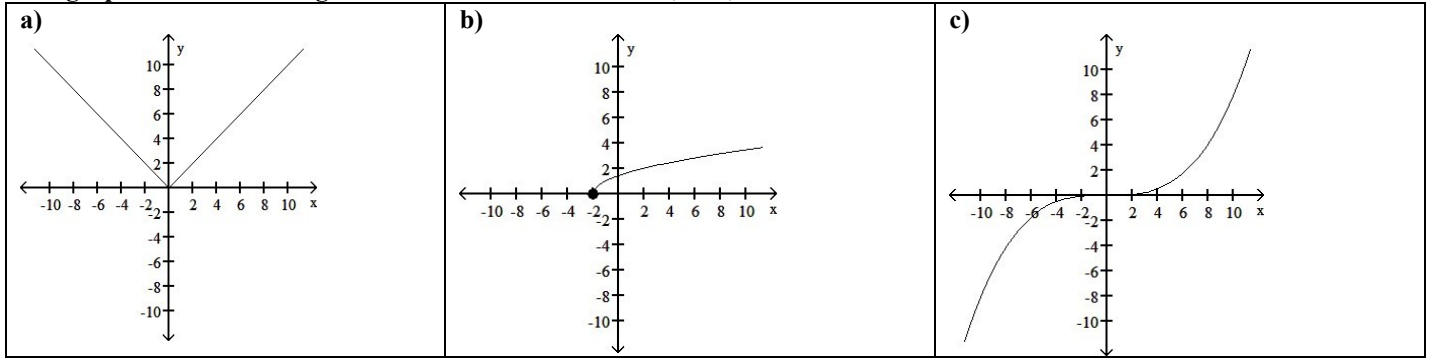
a) $f(x) = 7x + 8$

b) $f(x) = 2x^2$

c) $f(x) = 5x + 1$

**7)  The graph of a function f is given. Use the graph to answer the question.    Use the graph of f given below to find**

   a)   f(20).
   b)   Is   f(-50) positive or negative?
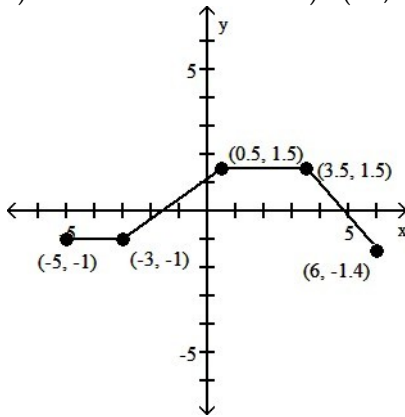   c)   What is the domain of f?
   d)   For what numbers is f(x)≤0?

**8)  The graph of a function is given. Decide whether it is even, odd, or neither.**
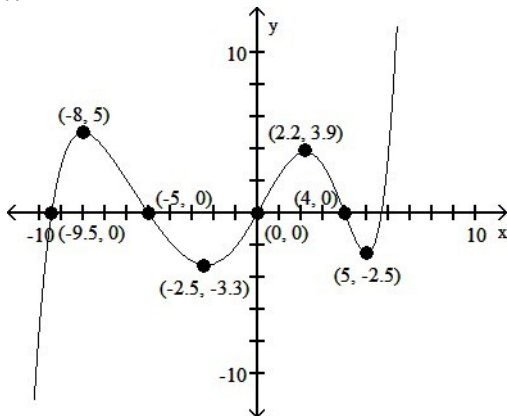
| a) | b) | c) |
|---|---|---|

**9) The graph of a function is given. Determine whether the function is increasing, decreasing, or constant on the given interval.**
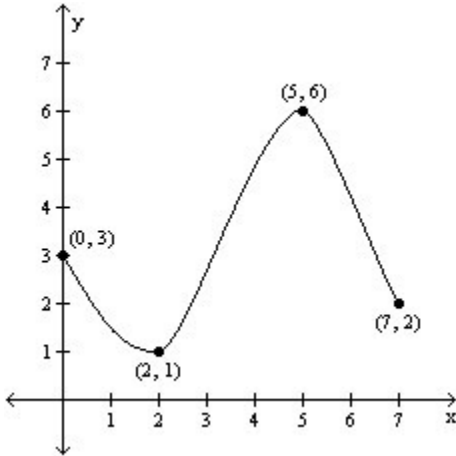
a) (-3, 0.5)                    b)  (0.5, 3.5)                    c)   (3.5, 6)

(0.5, 1.5)
(3.5, 1.5)
(-5, -1)    (-3, -1)
(6, -1.4)

**10)   Find the numbers, if any, at which f has a local maximum and/or a local minimum. What are the local maxima and minima?.**

(-8, 5)
(2.2, 3.9)
(-5, 0)
(4, 0)
-10 (-9.5, 0)
(0, 0)
10  x
(-2.5, -3.3)
(5, -2.5)

**11)  For the graph of the function y = f(x), find the absolute maximum and the absolute minimum, if it exists.**



**12)  Find the average rate of change for the function between the given values.**

$$f(x) = x^2 + 7x; \quad \text{from } 1 \text{ to } 5$$

**13)  Graph the function.**

b ) $f(x) = int\,(x) + 1$

a)  $f(x) = \begin{cases} x+1 & if \;\; -7 \le x < 5 \\ -7 & if \;\; x = 5 \\ -x + 8 & if \;\; x > 5 \end{cases}$

c)  $f(x) = \begin{cases} 1 & if \;\; 0 \le x < 3 \\ |x| & if \;\; 3 \le x < 7 \\ \sqrt{x} & if \;\; 7 \le x \le 13 \end{cases}$

**14)  Write the equation of a function that has the given characteristics.**

a) The graph of $y = x^2$, shifted 6 units upward

b) The graph of $y = |x|$ , shifted 8 units upward

c) The graph of $y = \sqrt{x}$ , shifted 7 units to the right

**15)  Graph the function by starting with the graph of the basic function and then using the techniques of shifting, compressing, stretching, and/or reflecting.**

a) $f(x) = (x+3)^2 + 3$

b) $f(x) = 2x^2$

c)  $f(x) = 3(x+1)^2 + 2$

**16)  Use the graph of $f(x) = x^2$ to sketch the graph of the indicated equation.**

$$y = -\frac{1}{3}f(x+5)^2 + 2$$