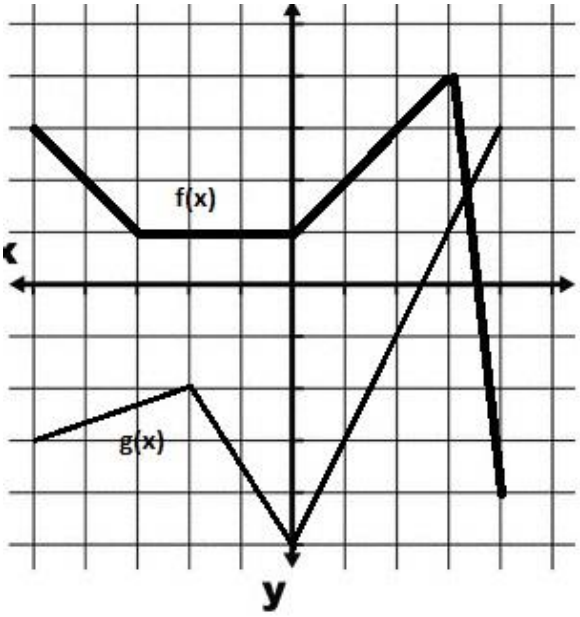
REGULAR PRECALCULUS
Summer Packet

Name:_____
Period: _____ Date:_____

1) Graphs $f(x)$ and $g(x)$ are given below.



(a) $f(3) =$ _____

What point is this on the graph? _____

(b) $g(-2) =$ _____

What point is this on the graph? _____

(c) Find the values of x where $g(x) = -1$ _____

(d) Graph $(f+g)(x)$.

(e) Name the interval(s) where function f is decreasing, increasing, and constant.

DEC_____ INC_____ CONST_____

(f) Write the domain and range of functions:

$D_f =$ _____ $R_f =$ _____

$D_g =$ _____ $R_g =$ _____

2) $f(x) = x + 2$
$g(x) = 2x - 1$

a) $(f+g)(x) =$

c) $(fg)(x) =$

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

d) $(\frac{f}{g})(x) =$

e) domain of $(\frac{f}{g})(x) =$

f) domain of $(\frac{g}{f})(x) =$

3) $f(x) = x^2$
$g(x) = 4x - 5$

a) $(f + g)(x) =$

c) $(fg)(x) =$

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

d) $(\frac{f}{g})(x)$

e) domain of $(\frac{f}{g})(x) =$

f) domain of $(\frac{g}{f})(x) =$

4) Given $f(x) = \frac{1}{x}$ and $g(x) = \frac{1}{x^2}$

a) $(f + g)(x) =$

c) $(fg)(x) =$

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

d) $(\frac{f}{g})(x) =$

e) domain of $(\frac{f}{g})(x) =$

f) domain of $(\frac{g}{f})(x) =$

For problems 5-8 perform the given operations, when $f(x) = x^2 + 3$, $g(x) = x - 2$

5) $(f + g)(3) =$

6) $(fg)(-2) =$

7) $(\frac{f}{g})(4) =$

8) $(f - g)(1) - f(3) =$

For problems 9 and 10, find the average rate of change $\frac{f(x+h)-f(x)}{h}$

9) $f(x)=3x-4$

10) $f(x)=1-x^2$

11. $f(x)=3-\sqrt{x}$

(a) $f(4)=$

(b) $f(0.25)=$

(c) $f(4x^2)=$

12. $f(x)=\frac{|x|}{x}$

(a) $f(2)=$

(b) $f(-2)=$

13. $f(x)=\begin{cases}3x-1, & x<-1\\ 4, & -1\le x\le 1\\ x^2, & x>1\end{cases}$

a) $f(-1)=$

b) $f(-2)=$

c) $f(2)=$

d) $f\left(-\frac{1}{2}\right)=$