Practice Test, Unit 1 Assessment

1. (4 pts)

Given A(2,1) and a line L: $4x-2y=3$,

(1) Find a line M so that $M \parallel L$ and a line N so that $N \perp L$, and M and N intersect at the point A?

(2) Let $B(x_2, y_2)$ be the intersection of L and N. $C(x_3, y_2)$ is on the line M. What are the coordinates of the B and C?

2. (4 pts each, pick 1)

Determine where in the domain will $f(x)$ be increasing? (use interval notation to write your answers.)

(Following a, b, and c are 3 separate questions)

(a) $f(x)=|x-2|+2|x+2|$

(b) $f(x)=-|x-3|+\frac{1}{2}|x-2|$

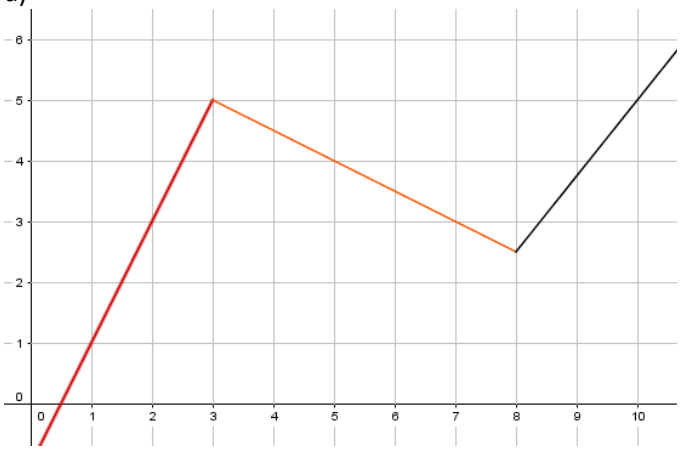
(c) $f(x)=|2x-1|+|2x-5|$

3.(12 points each, pick 1)

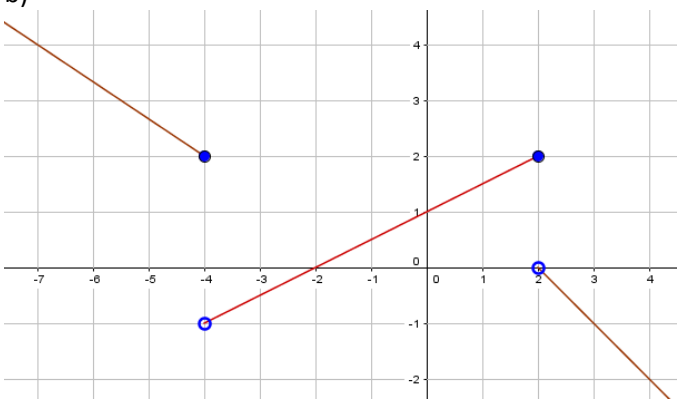
Given a graph below, write a piecewise defined function (assumed each segment can be represented by a linear function), the entire real number line is the domain.

(Following a, b, and c are 3 separate questions)

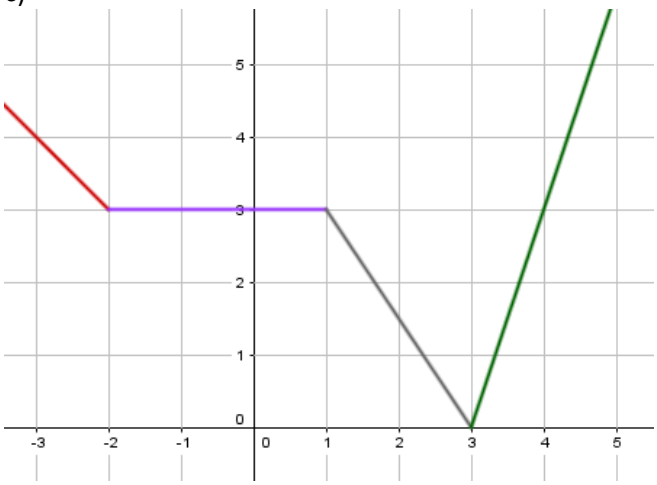
a)



b)



c)



Practice Test, Unit 1 Assessment

4. (4 points each, pick 1)

Use transformation to graph each function below. Identify the transformations between the given function and its parent function.

(Following a, b, and c are 3 separate questions)

a) $f(x)=-\frac{1}{2}(x-2)^2-3$

b) $f(x)=1-\sqrt{x+3}$

c) $f(x)=\frac{2}{x-3}+4$

5. (8 points each , pick 1) For each pair of function $f(x)$ and $g(x)$, find the intersection of $f(x)$ and $g(x)$ algebraically and verify your result graphically.

(Following a and b are 2 separate questions)

a) $f(x)=|2x-1|$, $g(x)=x^2$

b) $f(x)=\frac{1}{x-1}$, $g(x)=\frac{4}{3}x$

7. (16 points)

For each pair of function f(x) and g(x),

1) Find and graph $(f\circ g)(x)$

2) Find and graph $(g\circ f)(x)$

Also identify

3)The domain, x and y intercepts, and possible horizontal and vertical asymptotes of the composite functions

(Following a, b, and c are 3 separate questions)

$f(x)=-2+\sqrt{x}$, $g(x)=x-3$

6.(16 pts)

Given $f(x)$ and its domain,

$f(x)=\frac{3x-2}{2x-2}$, $x<1$

(a) find $f^{-1}(x)$,

(b) Identify the domains and ranges for both $f(x)$ and $f^{-1}(x)$

(c) Graph both $f(x)$ and $f^{-1}(x)$ on the same xy-plane

(d) Find the intersections of f and f^{-1} if possible, algebraically as well as graphically.