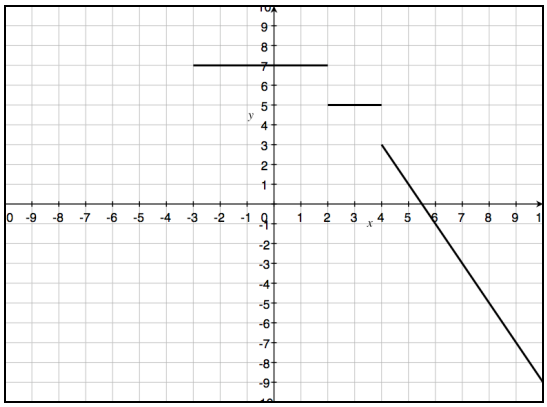
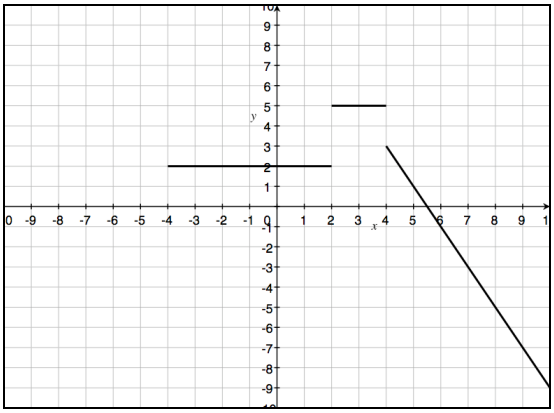
AP Calc Warm Up – 9/3/10

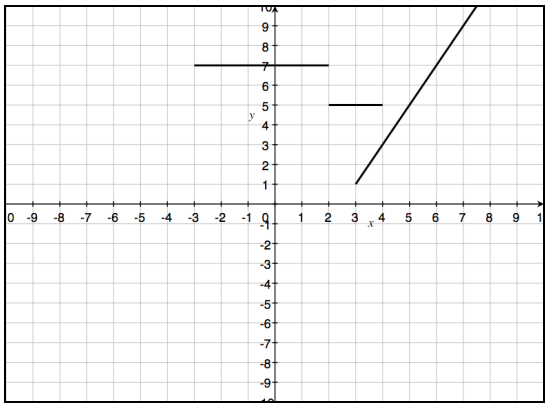
Name:_____ Period:_____

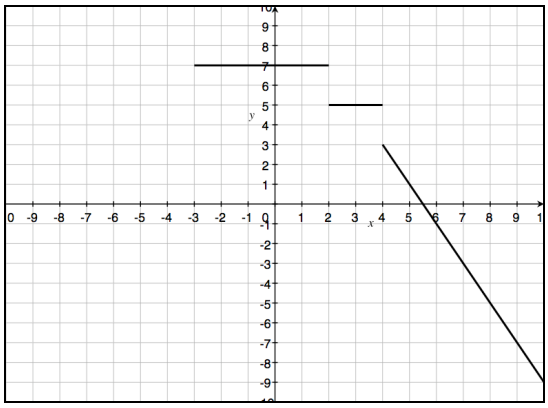
1) Match the following piecewise function to its graph.

$$f(x)=\begin{cases}7, & -3\le x<2\\ 5, & 2\le x<4\\ -2x+11, & x\ge 4\end{cases}$$









AP Calc
MASTERY CHECK Preparation

Name:_____Date:_____Period:_____

How do you feel about each objective? Place yourself on the continuum

1) Students will be able to determine if a function is strictly increasing, decreasing or neither

<----Confused----------Unsure----------Confident---->

2) Students will be able to translate between verbal descriptions and interval notation (and vice versa)

<----Confused----------Unsure----------Confident---->

3) Students will be able to identify intervals on which functions are increasing and decreasing (by graph) and identify maxima and minima

<----Confused----------Unsure----------Confident---->

4) Students will be able to identify if a function is continuous from its graph

<----Confused----------Unsure----------Confident---->

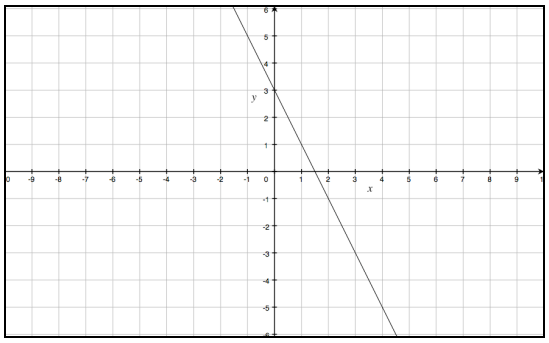
5) Students will be able to sketch a piecewise function given a function or construct an equation of a piecewise function given a graph

<----Confused----------Unsure----------Confident---->

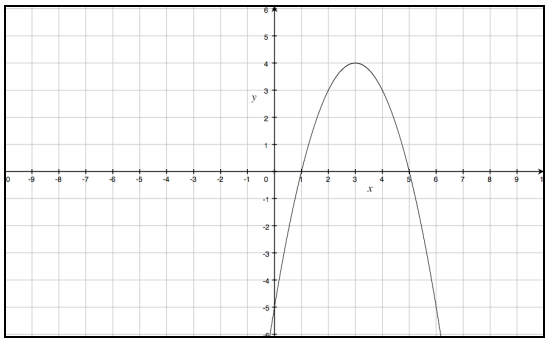
1) Students will be able to determine if a function is strictly increasing, decreasing or neither

Problems

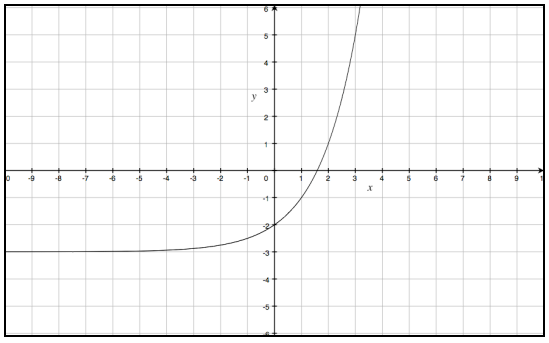
1) Label the following functions as strictly increasing, strictly decreasing or neither.



a)_____



b)_____



c)_____

Resources:

Increasing/Decreasing by Graph Skill Builder 8/23 - http://chavezmath.wikispaces.com/file/view/AP+Calc+08_23.pdf

Internet - http://www.youtube.com/watch?v=aJuJOB6NTuc

Highly Proficient Problems

1) The following table represents the x and y-values for the function $f(x)$. Choose the ONE value that would make $f(x)$ neither strictly increasing nor strictly decreasing.

x	$f(x)$
-1	7
0	2
1	
2	-8
3	-13

a. 2

b. -3

c. 0

d. -7

2) Students will be able to translate between verbal descriptions and interval notation (and vice versa)

Problems

1) Translate the following verbal descriptions into interval notation (you have your choice between greater than less than and brackets)
   a. x is greater than 5

   _____

   b. x is between -2 and 7 including -2 and 7

   _____

   c. x is between 3 and 12 including 3 but not including 12

   _____

2) Translate the following interval notation into a verbal description.
   a. $x \leq -3$

   _____

   b. $(0,500)$

   _____

   c. $(12,25]$

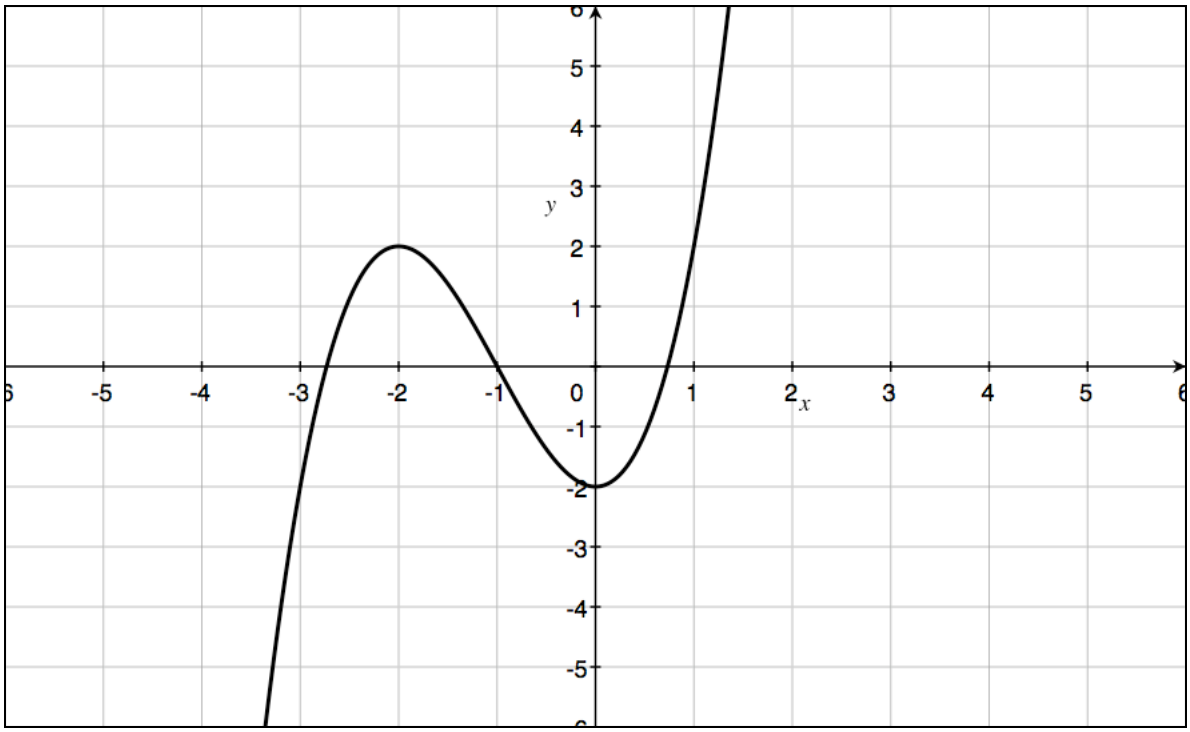
   _____

Resources:
Interval Notation Skill Builder 08/24 -
http://chavezmath.wikispaces.com/file/view/AP+Calc+08_24.pdf

Internet –
http://mathforum.org/library/drmath/view/53050.html
http://www.youtube.com/watch?v=gH1BBpZNfsI

3) Students will be able to identify intervals on which functions are increasing and decreasing (by graph) and identify maxima and minima

1) State the intervals over which the following function is increasing or decreasing. Identify any maxima or minima.



Increasing:

Decreasing:

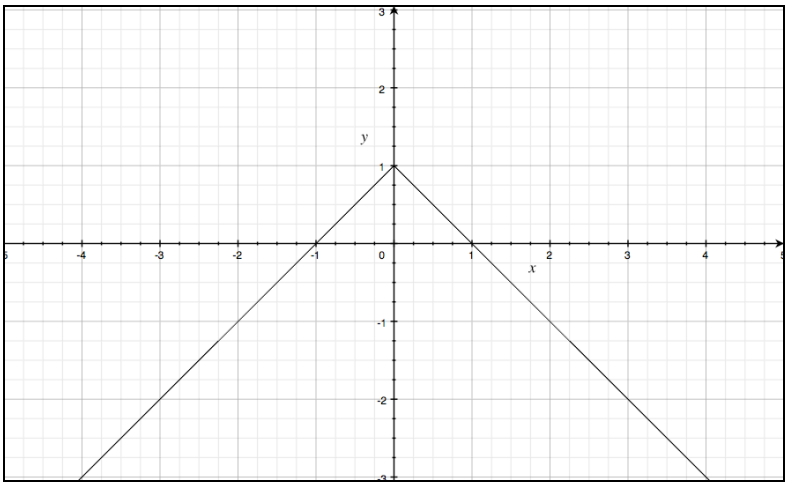
Maxima:

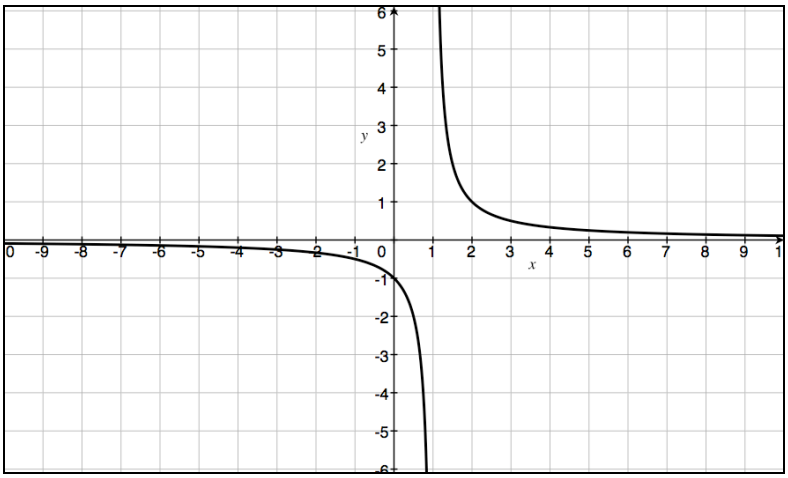
Minima:

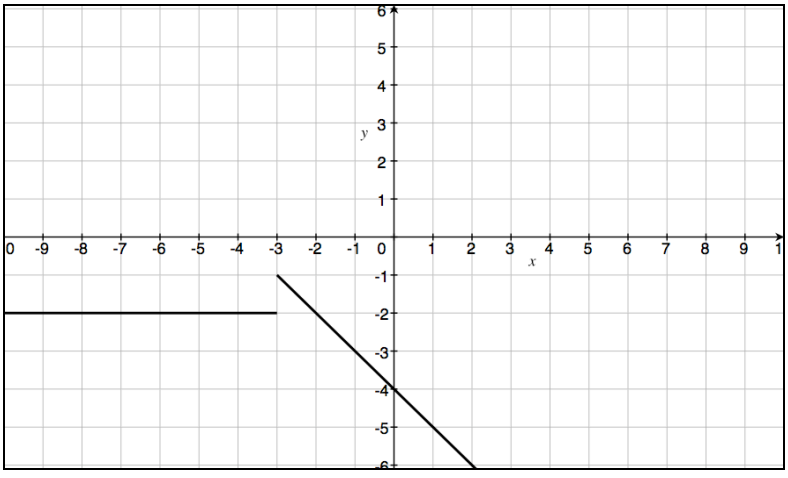
Resources:
Identifying Increasing/Decreasing Concept Builder 08/25 -
http://chavezmath.wikispaces.com/file/view/AP+Calc+08_25.pdf

4) Students will be able to identify if a function is continuous from its graph

1) State whether each function is continuous or not continuous. If it is not continuous state where it has a discontinuity.

a. 

b. 

c. 

Resources:

Identifying Continuity Skill Builder 8/26 -
http://chavezmath.wikispaces.com/file/view/AP+Calc+08_26.pdf

Textbook – p.

5) Students will be able to sketch a piecewise function given a function or construct an equation of a piecewise function given a graph

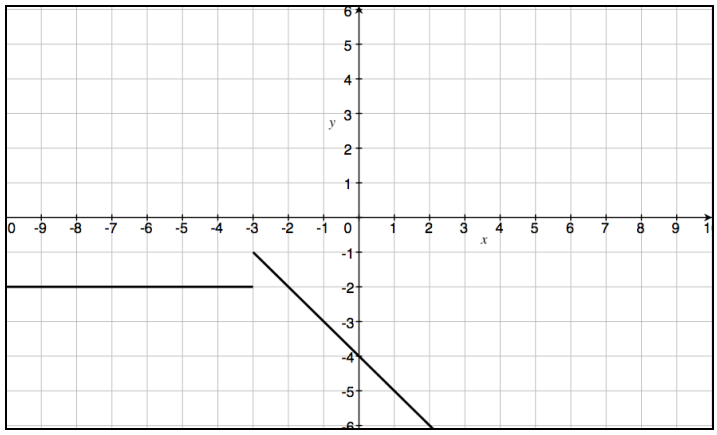
Graph the following piecewise functions on a separate piece of graph paper.

1) $f(x)=\begin{cases}2x, & x<3\\ x, & x\geq 3\end{cases}$

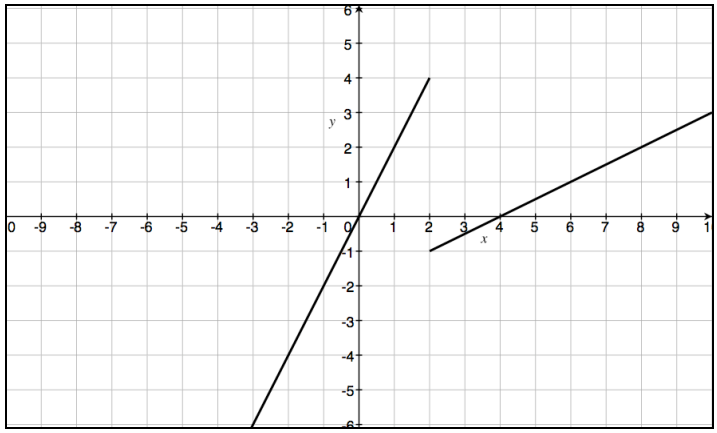
2) $f(x)=\begin{cases}-x+4, & x<-2\\ 4x-6, & x\geq 0\end{cases}$

3) $f(x)=\begin{cases}1, & 0\leq x\leq 3\\ 2x, & 3<x\leq 6\end{cases}$

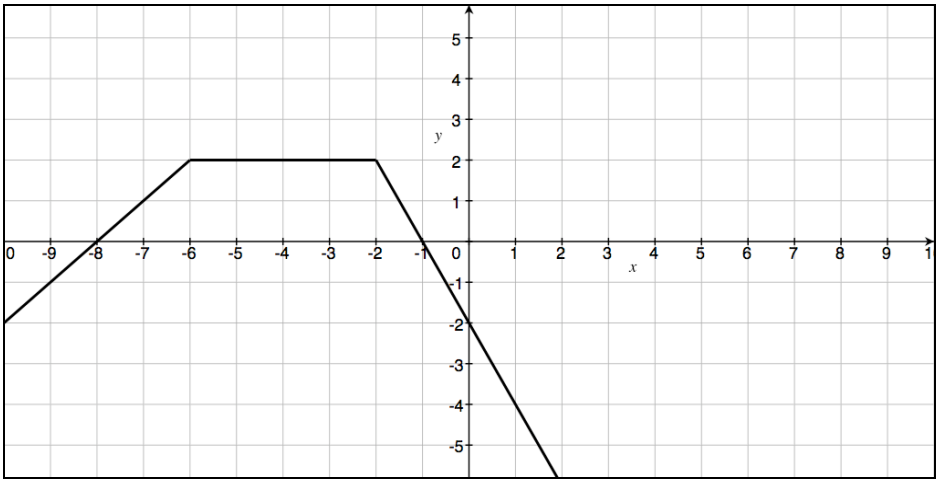
Convert the following graphs of piecewise functions into equations.

1) 

Equation:

2) 

Equation:

3) 

Equation:

Resources:
Piecewise Functions Skill Builder 8/31 -
http://chavezmath.wikispaces.com/file/view/AP+Calc+08_31.pdf
Equations of Piecewise Functions Skill Builder 9/2 -
http://chavezmath.wikispaces.com/file/view/AP+Calc+09_02.pdf

Internet
http://mathforum.org/library/drmath/view/53278.html
http://www.youtube.com/watch?v=eWo8tWuaGfU

HIGH PROFICIENCY QUESTIONS

1) Consider the following piecewise function:

$$f(x)=\begin{cases}2x+a, & x\le 3\\ -x+13, & x>3\end{cases}$$

a. If a=-4 is the function continuous?

b. Find a value of a that makes the function continuous.

c. Graph the resulting function on a piece of graph paper.

d. State the intervals on which the resulting function is increasing/decreasing.

e. State where the resulting function has any local maxima and/or minima.