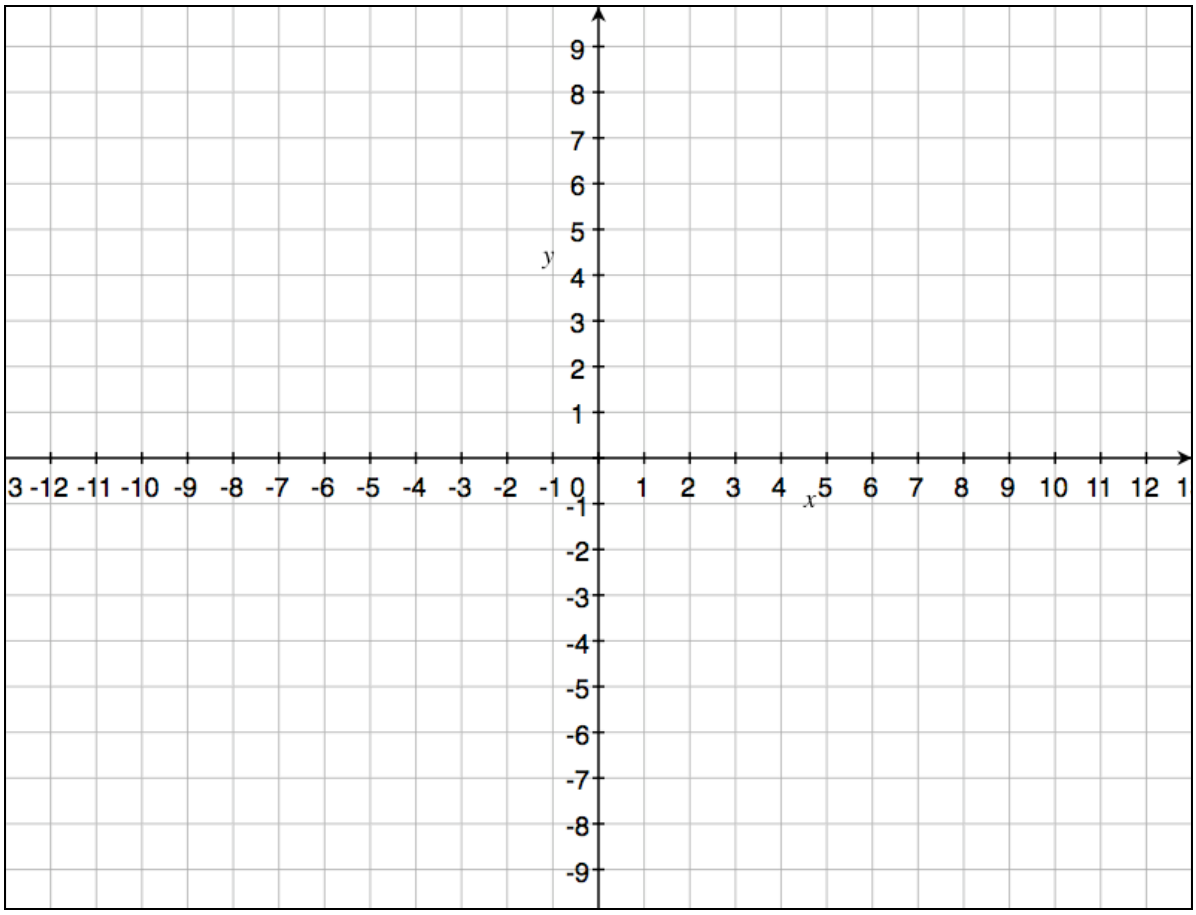
AP Calc Warm Up – 9/8/10

Name:_____ Period:_____

1) Graph the following piecewise function.

$$f(x)=\begin{cases} x-5, & -3 \le x < 2 \\ 2x-6, & 2 \le x < 4 \end{cases}$$



AP Calc
Continuity Problem Solving

Name:_____Date:_____Period:_____

Students will be able to find discontinuities in piecewise and inverse variation functions.

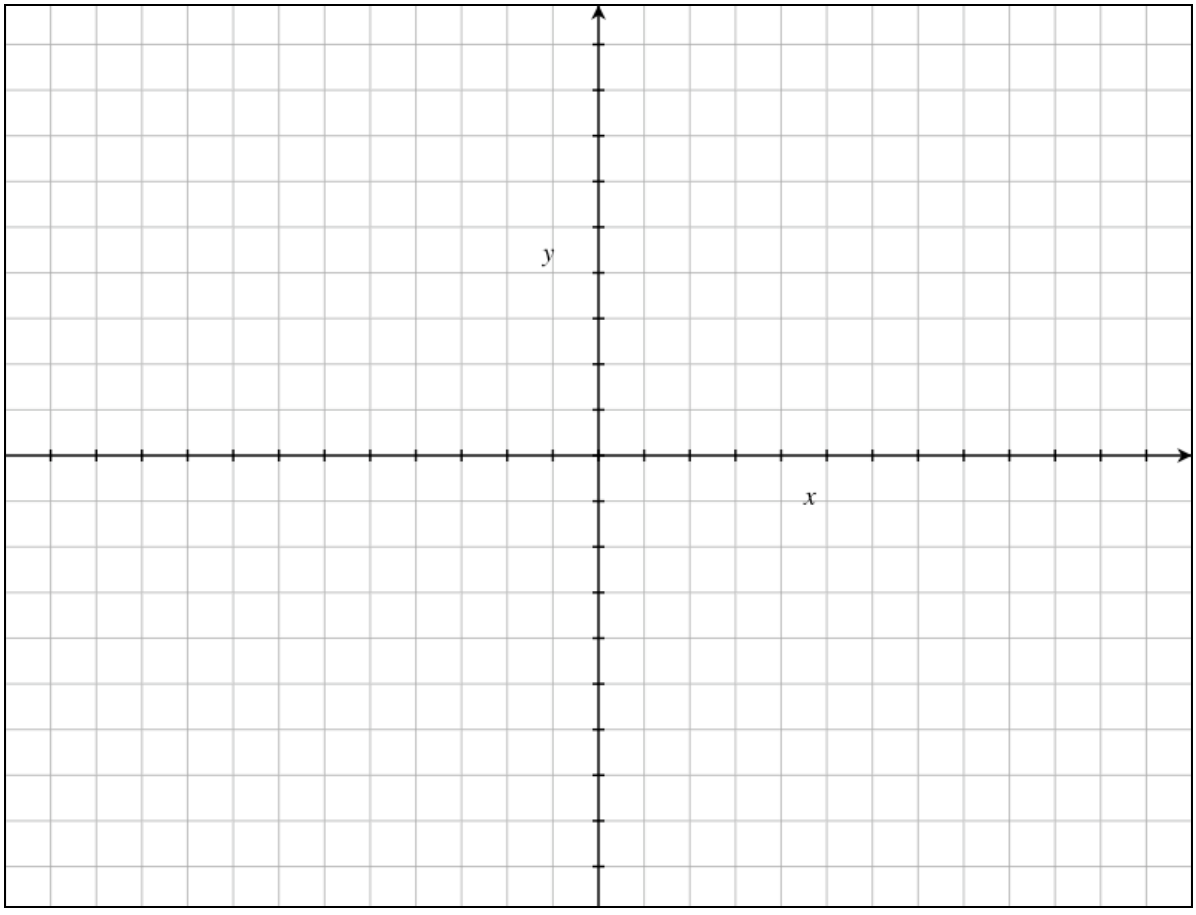
Consider the highly proficient problem from yesterday's Mastery Check:

1) Consider the following piecewise function:

$$f(x)=\begin{cases}3x+a, & x\le 3\\ -2x+8, & x>3\end{cases}$$

a. Graph the function if a=-4. Is the function continuous?

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



A piecewise function has a discontinuity if…

Determine if the following piecewise functions are continuous:

1) $f(x)=\begin{cases}2x, & x<3\\ -x+9, & x\geq 3\end{cases}$

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

3) $f(x)=\begin{cases}x^2, & x<-2\\ 4, & x=-2\\ -2x, & x\geq -2\end{cases}$

Continuity Problem Solving

1) Find the value of k that makes the following functions continuous.

   a. $f(x)=\begin{cases}3x, & x<1\\ -x+k, & x\geq 1\end{cases}$

   b. $f(x)=\begin{cases}2x, & x<3\\ k, & x=3\\ -x+9, & x>3\end{cases}$

INVERSE VARIATION FUNCTIONS:

Inverse variation functions have discontinuities when…

Practice – Find where the following functions have discontinuities.

1) $f(x) = \frac{1}{x}$

2) $f(x) = \frac{1}{x-4}$

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

4) $f(x) = \frac{1}{x^2-16}$

5) $f(x) = \frac{1}{x^3-8}$

AP Calc Exit Slip – 9/8/10

Name:_____ Period:_____

1) Determine if the following functions have discontinuities.

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

b. $f(x)=\dfrac{1}{4-x}$