Calculus 1 – NO CALCULATOR Name: _____

Evaluating Functions & Graphing Linear Piecewise Functions Warm Up Date: _____

Section 1: Evaluate each function at the value indicated. You will see some problems have been done for you as examples.

1) $f(x) = 2x^2 - 5x - 3$

a) $f(-2) = 2(-2)^2 - 5(-2) - 3 = 8 + 10 - 3 =$ **15**

b) $f(-1) =$ _____

c) $f(0) =$ _____

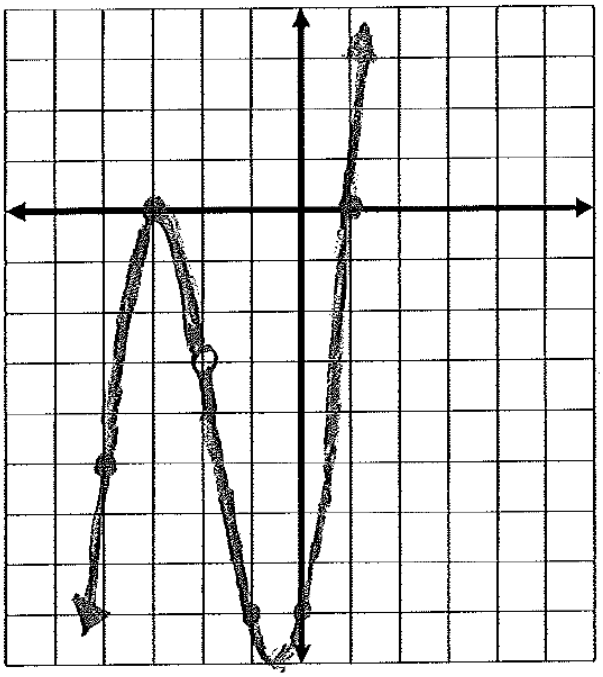
d) $f(1) =$ _____

e) $f(2) =$ _____

Notice, you can turn each of those answers into ordered pairs that would be useful for sketching the graph of the function.

a) (-2, **15**) b) (-1, ____) c) (0, _____) d) (1, ____) e) (2, _____)

2) g(x) is shown in the graph below.



a) g(-4) = -5

b) g(-3) = _____

c) g(-2) = _____

d) g(-1) = _____

e) g(0) = _____

f) g(1) = 0

3) $h(x) = \begin{cases} 3 & x \le -2 \\ x^2 - 1 & -2 < x \le 3 \\ x - 5 & x > 3 \end{cases}$

a) h(-3) = **3**

b) h(-2.5) = _____

c) h(-2) = _____

d) h(-1) = $(-1)^2 - 1 = 1 - 1 =$ **0**

e) h(0) = _____

f) h(1) = _____

g) h(2) = _____

h) h(3) = _____

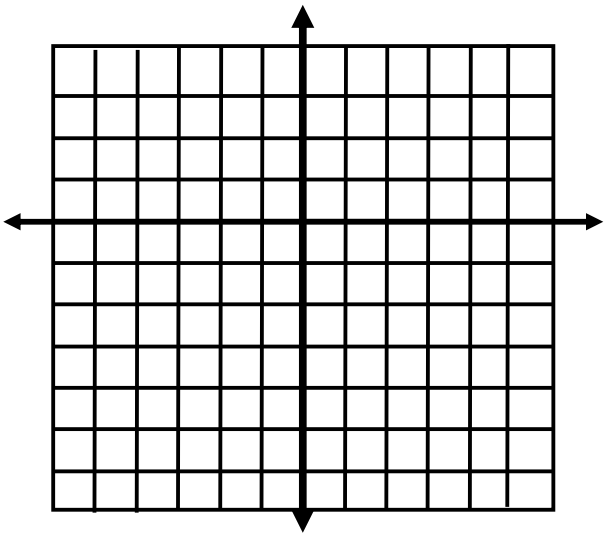
i) h(4) = 4 – 5 = **-1**

j) h(5) = _____

BIG HINT: This is a **piecewise function**. If you are tempted to put more than one answer down for any of these, you are incorrect. If there was more than one answer…it wouldn't be a _____!

Section 2: Graph each linear Piecewise Function. Answer any follow up questions.

1. $g(x)=\begin{cases} x-2 & x\le 1 \\ -2x+1 & x>1 \end{cases}$



$\lim_{x\to 0^-} g(x) =$ _____ $\lim_{x\to 1^-} g(x) =$ _____

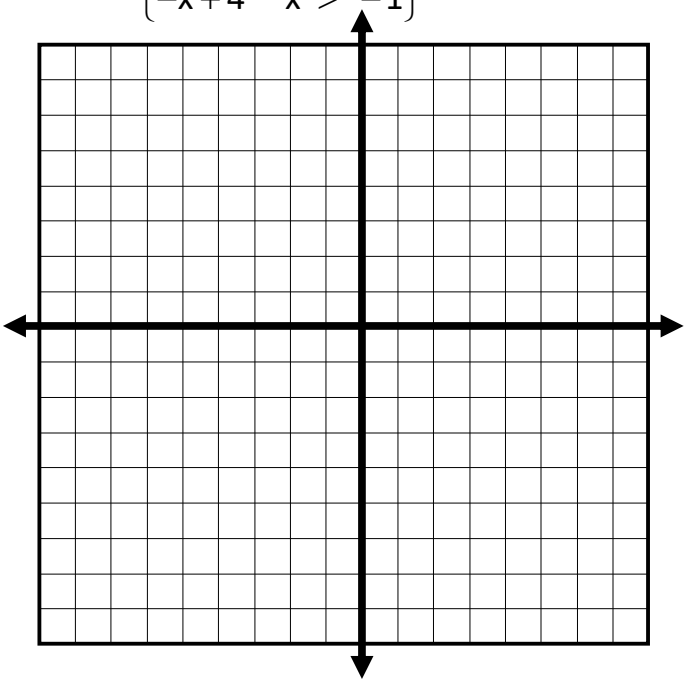
$\lim_{x\to 0^+} g(x) =$ _____ $\lim_{x\to 1^+} g(x) =$ _____

$\lim_{x\to 0} g(x) =$ _____ $\lim_{x\to 1} g(x) =$ _____

g(0) = _____ g(1) = _____

Is g(x) continuous at x = 0? _____
Is g(x) continuous at x = 1? _____

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



$\lim_{x\to -1^-} f(x) =$ _____ $\lim_{x\to 2^-} f(x) =$ _____

$\lim_{x\to -1^+} f(x) =$ _____ $\lim_{x\to 2^+} f(x) =$ _____

$\lim_{x\to -1} f(x) =$ _____ $\lim_{x\to 2} f(x) =$ _____

f(-1) = _____ f(2) = _____

Is f(x) continuous at x = -1? _____
Is f(x) continuous at x = 2? _____

3. $h(x)=\begin{cases} 3 & x\le -3 \\ -2x-4 & -3<x<-1 \\ x-2 & x\ge -1 \end{cases}$

$\lim_{x\to -3^-} h(x) =$ _____ $\lim_{x\to -1^-} h(x) =$ _____

$\lim_{x\to -3^+} h(x) =$ _____ $\lim_{x\to -1^+} h(x) =$ _____

$\lim_{x\to -3} h(x) =$ _____ $\lim_{x\to -1} h(x) =$ _____

f(-3) = _____ f(-1) = _____

Is h(x) continuous at x = -1? _____
Is h(x) continuous at x = -3? _____