SHOW ALL WORK IN YOUR NOTEBOOK

1. Given that $f(x) = -3x + 2$ and $h(x) = |2x - 1|$. Find each of the following:

   a) $f(3)$

   $= -3(3) + 2$

   $= \boxed{-7}$

   b) $h(0)$

   $= |2(0) - 1|$

   $= |-1| \quad = \boxed{1}$

   c) $h(-3) - f(2)$

   $h(-3) = |2(-3) - 1| = |-7| = 7$
   $f(2) = -3(2) + 2 = -4$
   $\quad 7 - -4 \ = \boxed{11}$

   d) $f(h(3))$

   $h(3) = |2(3) - 1| = |5| = 5$
   $f(5) = -3(5) + 2 = \boxed{-13}$

   e) $h(f(3))$

   $f(3) = -3(3) + 2 = -7$
   $h(7) = |2(-7) - 1| = |-15| = \boxed{15}$

2. For each relation below, decide whether or not the relation is a *function*. If not a function **EXPLAIN** why not.

   a) the set of ordered pairs given by:

x	1	3	6	-1
y	2	4	4	0

   Function
   * each input has exactly one output.

   b) the set of the ordered pairs $\{(1,1),(2,2),(3,3)\}$

   Function * each input has exactly one output.

   c) the set of the ordered pairs $\{(2,5),(-2,6),(2,7)\}$

   Not a function, the input of "2" has two outputs.

   d) $y = -x^2 + 1$

   Function

   e) $2x - 6y = 12$

   $-6y = -2x + 12$ $y = \frac{2}{3}x + 2$ Function

   f) a U.S. citizen and his/her social security number

   Function. Each person has exactly one ss #.
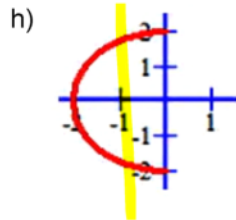
   g) a U.S. citizen and his/her phone number

   Not a Function.
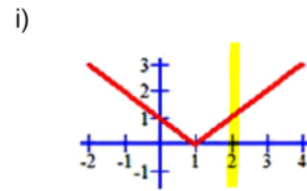   * Some people have no phone #.
   * Some people have 2 phone #s (home & cell).

h)

i)

Not a Function
* FAILS Vertical Line test.
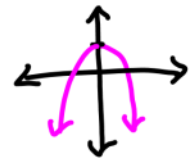
Function.
* PASSES VERTICAL Line test

3. Give the domain and range for 2a above

    Domain $\{1, 3, 6, -1\}$ Range $\{2, 4, 0\}$

4. Give the domain and range for 2d above

    $y = -x^2 + 1$

    Domain $(-\infty, \infty)$ Range $(-\infty, 1]$

5. Give the domain and range for 2h above

    Domain $[-2, 0]$ Range $[-2, 2]$