Name: KEY v. 1.1 Period:

Sheet # 220 - Algebra II. Chapter 2.1 review lines; 2.2 functions

1. a) Find the point-slope equation of the line passing through the points $(2, -4.5)$ and $(7, -4)$.

$m = \frac{-4-(-4.5)}{7-2} = \frac{0.5}{5} = 0.1$

$y + 4.5 = 0.1(x-2)$ or $y + 4 = 0.1(x-7)$

NOT ASKED FOR: Slope-intercept form: $y = 0.1x - 4.7$

For b and c: Consider the line $L1$: $12x + 6y - 13 = 0$.

b) Find the slope of all lines perpendicular to the line $L1$. (Just the value)

$y = \frac{-12x+13}{6} = -2x + \frac{13}{6}$

$m_{\perp} = \frac{1}{2}$

POINT-SLOPE

c) Find the equation of the line passing through the point $(-1, 8)$ and perpendicular to $L1$.

$m = \frac{1}{2}$

$y - 8 = \frac{1}{2}(x-(-1))$ or $y - 8 = \frac{1}{2}(x+1)$

$y = \frac{1}{2}x + \frac{1}{2} + 8$

NOT ASKED FOR: Slope-intercept form: $y = \frac{1}{2}x + 8.5$

2. Decide if the given relations are functions.

a) *Circle one:* **Function** or **Not Function**

Input	3	9	12	18	23
Output	1	6	8	12	23

b) *Circle one:* **Function** or **Not Function**

Input	1	6	8	6	−1
Output	6	7	9	13	10

TWO $x=6$

NOT UNIQUE.

c) *Circle one:* **Function** or **Not Function**

$y^2 = 3x^2 + 8$

$y = \pm\sqrt{3x^2+8}$ NOT UNIQUE

3. Given the function $f(x) = -3x^2 + 2$, find the values

a) $f(1) = -3(1)^2 + 2 = -3 + 2$ $\boxed{-1}$

b) $f(3) = -3(3)^2 + 2 = -27 + 2$ $\boxed{-25}$

c) $f(x-1) = -3(x-1)^2 + 2$

$= -3(x^2 - 2x + 1) + 2 = -3x^2 + 6x - 3 + 2$

$\boxed{-3x^2 + 6x - 1}$

4. Given the piece-wise function

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

a) $f(1) = 1 + 3 =$ $\boxed{4}$ low

b) $f(2) = 2(2) - 1 = 4 - 1 =$ $\boxed{3}$ high

c) $f(2.5) = 2(2.5) - 1 = 5 - 1 =$ $\boxed{4}$ high

5. Find the x intercepts (zeros) of the following functions. You may use your calculator. Give the answer to 3 decimals.

a) $g(x) = x^5 + x + 1$

$\boxed{-0.755}$

b) $h(x) = -4x^2 - 2x + 1$ has two zeros

Zero 1: $\boxed{-0.809}$

Zero 2: $\boxed{0.309}$