

Name: _____

Show work needed to justify your answer.

Date: _____

HW: # 8a: Math IBSL - Standard 8 - Linear Functions

5 points

- 1 Use your GDC to find the point of intersection for each pair of lines:

a $y = 2x - 1$ and $y = 3x + 1$

b $y = 2x + 1$ and $4x + 2y = 8$

a. $(-2, -5)$

b) $(\frac{3}{4}, \frac{5}{2})$

$y = 2x + 4 \leftarrow 2y = -4x + 8$

- 3 The following equations give the weekly salary an employee can earn at two different sales jobs, where x is the amount of sales in euros and y is the weekly salary in euros. Find the amount of sales for which the weekly salaries would be equal.

$$y = 0.16x + 200$$

$$y = 0.10x + 300$$

$$0.16x + 200 = 0.10x + 300$$

$$0.06x = 100$$

$$x \approx 1667$$

4. Consider the functions $f(x) = -x + 5$,

$g(x) = 2x + 3$ and $h(x) = \frac{1}{3}x - 4$. Find the following:

a $f(3)$

b $g(0)$

c $h(6) - g(1)$

d $f(2) + g(-1)$

e $(f \circ g)(4)$

f $(h \circ f)(-7)$

g $(f \circ g)(x)$

h $(h \circ f)(x)$

a) $f(3) = \boxed{2}$

b) $g(0) = \boxed{3}$

c) $h(6) - g(1) = \boxed{-7}$
 $-2 - 5$

d) $f(2) + g(-1) = \boxed{4}$
 $3 + 1$

(e) $f(g(4)) = f(11) = \boxed{-6}$

(f) $h(f(-7)) = h(12) = \boxed{0}$

(g) $f(g(x)) = f(2x+3)$
 $= -(2x+3) + 5$
 $= \boxed{-2x + 2}$

(h) $h(f(x)) = h(-x+5)$
 $= \frac{1}{3}(-x+5) - 4$
 $= -\frac{1}{3}x + \frac{5}{3} - \frac{12}{3}$
 $= \boxed{-\frac{1}{3}x - \frac{7}{3}}$