Name: _____ **Show work needed to justify your answer.** Date: _____

HW: # 7: Math IBSL - Standard 7 - Gradient of a Linear Function 5 points

1 Determine whether lines 1 and 2 which pass through the given points are parallel, perpendicular or neither.

a Line 1: (3, 6) and (6, 11)
Line 2: (4, −1) and (9, 2)

b Line 1: (5, −1) and (3, 7)
Line 2: (−1, 4) and (0, 0)

a) 1: $\frac{11-6}{6-3} = \frac{5}{3}$

2: $\frac{2--1}{9-4} = \frac{3}{5}$

Neither

b: 1) $\frac{7--1}{3-5} = \frac{8}{-2} = -4$

2: $\frac{4-0}{-1-0} = \frac{4}{-1} = -4$

PARALLEL

2 Find the gradient of the line passing through the given points:

a (4, 8), (8, 11) **b** (−2, 2), (4, −4)

a) $m = \frac{11-8}{8-4}$

$m = \frac{3}{4}$

b) $m = \frac{2--4}{-2-4}$

$m = \frac{6}{-6} = -1$

3 Liam works up to 60 hours each week. His weekly pay, in dollars, depends on the number of hours he works, as shown in the graph.

a Find the gradient for each line segment in the graph.

b Explain the meaning of each gradient in the context of Liam's work.

a) $m = \frac{320-0}{40-0} = 8$

$m = \frac{560-320}{60-40}$

$= \frac{240}{20} = 12$

b) makes $8/hr for first 40 hours and then makes $12/hr for next 20 hours.