Slope Final Assignment- Fin & Workplace Math110
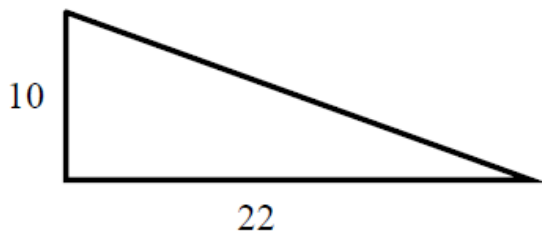
Name_____

Part A: Find the missing variable in each of the following proportions.
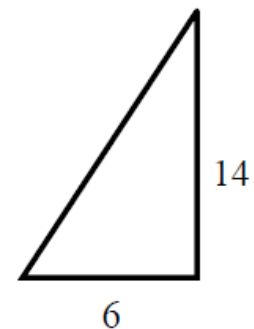
1) $\dfrac{3}{8} = \dfrac{t}{16}$ 　　　　 2) $\dfrac{b}{12} = \dfrac{12}{4}$ 　　　 3) $\dfrac{5}{n} = \dfrac{16}{80}$ 　　　 4) $\dfrac{7}{15} = \dfrac{24}{p}$

Part B: Find the **SLOPE** of each of the following lines as a <u>fraction</u> and <u>decimal</u>.

a) 　　　　　　　　　　　　　　　　　　　　　　b)

Part C: Word Problems.

1. John walks up a flight of stairs. The stairs are 9 feet high and cover a distance along the floor of 15 feet. What is the slope of these stairs?

2. A ramp has a slope of $\dfrac{2}{5}$. If the run of this ramp is 25 feet, what is the rise?
   Hint: Set up proportion with the ratio given and by using an "x".

Part C: Calculate the <u>slope</u> and <u>angle of elevation</u> of each of the following. Remember anytime you are finding angles, you have to use 2ndF on your calculator and you need at least 4 decimal places when you do the ratio.

1)

4

13

θ

2)

20

6
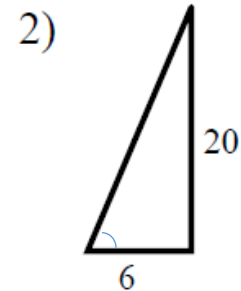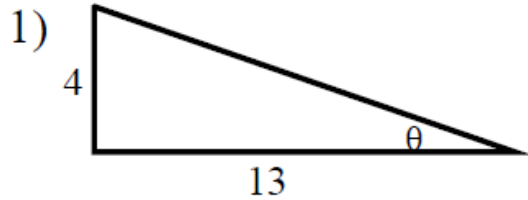
3. Mark wants to know the angle of elevation of his new driveway. He measures and finds the driveway rises 6 feet and has a run of 100ft. What is the angle of elevation of his driveway?

4. A section of road rises from an elevation of 1070m to 1132m. The run is 1300m. What is the percent <u>grade</u> in the road? **You have to calculate the rise by taking the difference of the two numbers.

5. On US highways, engineers have to make sure that the road does not have any grades greater than <u>6% to ensure safe driving</u>. One section of road in Canada runs for 600m and raises 200m. Would this section of road be acceptable in the US? Hint: Just find the percent.

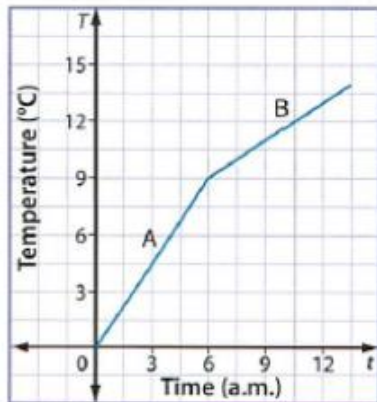6. The following diagram shows the relationship of the cost to have a lawyer work for you:
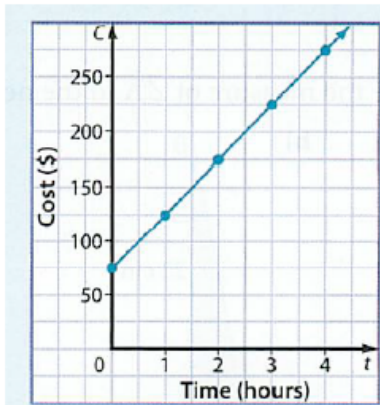
a) How much does the lawyer initially charge? How much does the lawyer charge every hour?

b) After 3 hours, how much will the lawyer have made?

c) What is the slope of the line shown in the diagram?

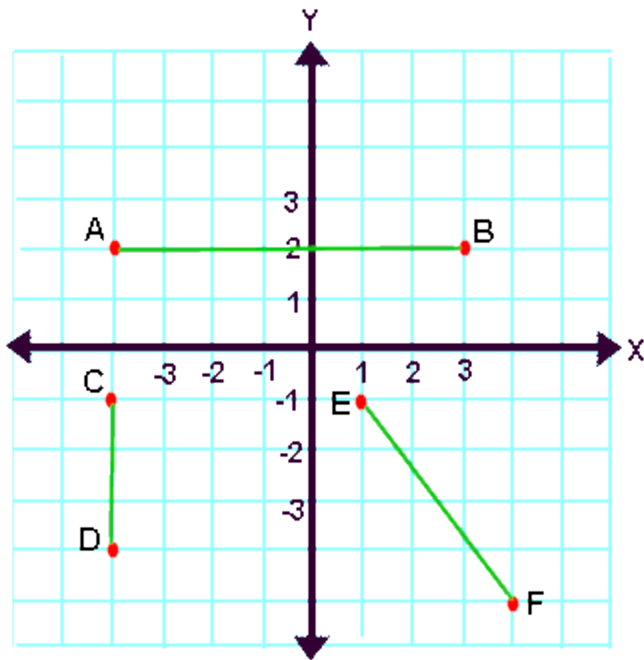7. The graph shows the hourly temperature for the morning.

a) Find the slope of Line A and Line B.

b) What are the rate of change of each line?

Part D: Complete the following table.

Rise	Run	Slope(fraction)	Slope(decimal)	Grade
10	50			
		$\dfrac{3}{4}$		
			0.8	
				90%

2. Determine the slope of each line segment on the following graph. (hint- for EF think carefully about +/- directions)

3. Using each pair of points below, determine the slope of the line using the slope formula. See example to the right.

a) (6,1) & (7,8)

$$(-3,8) \quad (2,-11)$$
$$x_1 \quad y_1 \qquad x_2 \quad y_2$$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-11 - 8}{2 - (-3)} = \frac{-19}{5}$$

b) (-1, 4) & (-2, -6)

c) (3,-9) & (8,-3)

d) (-6, 2) & (4,-7)