Math 1320 Quiz 2 Name KEY

You may use a calculator and your homework, but not your books or notes. There are two problems worth 10 points each. **Show all of your work to receive full/partial credit.**

1) Find a linear equation whose graph is the straight line that passes through the points $(0.5, -0.75)$ and $(1, -3.75)$.

Find m: $m = \frac{-3.75-(-0.75)}{1-0.5} = \frac{-3}{0.5} = -6$

$y = -6x + b$

$-0.75 = -6(0.5) + b$

$-0.75 = -3 + b$

$b = 2.25$

$y = -6x + 2.25$

2) (#80 from 1.3) A soft-drink manufacturer can produce 1,000 cases of soda in a week at a total cost of $6,000 and 1,500 cases of soda at a total cost of $8,500. Find the manufacturer's weekly fixed costs and marginal cost per case of soda.

Find cost function $C(x) = mx + b$

$$m = \frac{C_2 - C_1}{x_2 - x_1} = \frac{8500 - 6000}{1500 - 1000} = \frac{2500}{500} = 5$$

$C(x) = 5x + b$

$6000 = 5(1000) + b \rightarrow b = 1000$

So $C(x) = 5x + 1000$

marginal cost is $5 per case

fixed costs are $1,000