

MATH110(0402) Elementary Mathematical Models

Quiz 1, Monday, February 2, 2009

Name: _____

Show all work clearly and in order, and circle your final answers. Justify your answers algebraically whenever possible. Calculator is allowed in this quiz. You have 15 minutes to take this 12 point quiz. Only the first 10 points you gain will count.

1. (*3 points*) Find an equation of the line which has x-intercept 1 and is increasing at a rate of 2 units of y per 3 units of x . Put into slope-intercept form.

2. (*2 points*) Find the both x and y intercepts and the slope of the line $5x - 4y = 3$.

3. (*4 points*) Patty has a pretzel shop which has fixed daily costs of \$1125 and marginal costs of \$.25 per pretzel. Patty sells her pretzels for \$1.75 each.

- Write an equation to express Patty's cost, C , in terms of x , the number of pretzels made daily.
- Write an equation to express her revenue, R , in terms of x .
- How many pretzels must be sold daily so that Patty breaks even?

4. (*3 points*) Bob can sell 90 pet chias per week if they are marked at \$1 each, but only 30 each week if they are marked at \$2/chia. Bob's chia supplier is prepared to sell him 20 chias each week if they are marked at \$1/chia, and 180 each week if they are marked at \$3 per chia.

- Write down the associated linear demand and supply functions.
- At what price should be the chias be marked so that there is neither a surplus