MATH 1520 A03 **B09**
January 21, 2008

Tutorial Test 1

Department of Mathematics
University of Manitoba

Student Name _____ Student ID _____ Marks _____/25

You are given 30 minutes to finish ALL questions; Please show ALL your work to get full credits.

[2] 1. (a) Find the y-intercept of the line $2x + 3y = 6$.

[2] (b) Find the slope of the line through the points $(1, -2)$ and $(9, 6)$.

[3] (c) Find the equation of the line that passes through the point $(1, -2)$ and is perpendicular to $x + 3y = 7$.

2. Let $f(x) = -3x + 6$. Find

[2] (a) the value of $f(2)$.

[2] (b) the values of x such that $f(x) > 0$.

[4] 3. Let the supply and demand functions for strawberry flavored licorice be given by

$$p = S(q) = \frac{3}{2}\,q \qquad \text{and} \qquad p = D(q) = 81 - \frac{3}{4}\,q$$

where p is the price in dollars and q is the number of batches, respectively. Find the equilibrium quantity and equilibrium price.

4. Producing x units of tacos costs $C(x) = 5x + 40$ and the revenue function is $R(x) = 25x$, where $C(x)$ and $R(x)$ are in dollars.

[3] (a) What is the break-even quantity?

[2] (b) What is the average cost function $\overline{C}(x)$?

[2] (c) What is the profit function $P(x)$?

[1] (d) What is the profit from 100 units?

[2] (e) How many units will produce a profit of \$2,000?