Math 1050 - Quiz 1

1. Find the perimeter and area of the triangle whose vertices are

$(0,0)$, $(6,0)$, *and* $(3,5)$.

2. Find the center and radius for the circle with equation

$$x^2 - 8x + 16 + y^2 + 4y - 21 = 0$$

3. Given points $A = (5,-6)$ and $B = (-3,4)$, find

(a) The slope of the line containing A and B

(b) The coordinates of the midpoint M of the segment AB.

(c) The slope of the line through M and perpendicular to segment AB.

(d) The equation of the line through M and perpendicular to segment AB. Write your answer in the form $y = mx + b$

4. An open-topped box is to be made from a rectangular piece of cardboard *14* inches by *10* inches, by cutting an x" by x" square from each corner and bending up the sides.

a) Express the volume of the resulting box in terms of x.

b) Use a graphing calculator and the trace feature to determine the value of x for which the volume is a maximum.

5. Solve the equation $3x^2 + 5x - 4 = 0$.

6. Solve the inequality $|2x + 5| > 3$

7. Eva enters a walkathon that covers a total distance of *20* miles. She runs part of the distance at a rate of *6* mph and walks the remaining distance at a rate of *4* mph, completing the course in *4* hours and *15* minutes. Hint: Let x be the distance Eva runs and use $distance = rate \bullet time$. Eva's total time is the time spent running plus the time spent walking.

8. If you drive *120* miles at a speed of *70* miles per hour, and then return along the same route at a more leisurely speed of *50* miles per hour, what is your average speed for the round trip?