

## MATH 275 – Section 002 – Quiz 1

You may work with other class members on this quiz, but you may *not* receive assistance from people not in MATH 275 (Section 002). You must show all of your work to receive full credit. Do all your work on other sheets of paper and be sure to staple all the pieces of paper together or YOU WILL GET A 'ZERO' ON THE QUIZ. Do not use decimal approximations unless asked to do so. Your work on this quiz must be handed in by Tuesday, 20 January 2004 at 12:40 p.m. GOOD LUCK!

1) Consider the triangle whose vertices are the points  $(1, 2, 3)$ ,  $(-1, -1, -3)$ , and  $(2, 5, -1)$ . Is this an isosceles triangle? Is it a right triangle? Explain.

2) A sphere has a diameter whose end points are  $(1, 2, 3)$  and  $(-5, 4, -1)$ . What is an equation of this sphere?

3) Describe the set of points that satisfy the equation

$$x^2 + y^2 + z^2 = 4x - 6y + 12z - 49.$$

4) An object whose weight 75 pounds is hanging from two wires. The wire on the left makes an angle of 50 degrees with the horizontal. The wire on the right makes an angle of 30 degrees with the horizontal. Find the tension in each wire and the magnitude of each. You may write your answers using decimal approximations.