

Math 53, Spring 2000, sections 107 & 109
Quiz #4, 11 February

Name_____

Instructions: You have 25 minutes in which to answer the questions on BOTH pages of this quiz. No calculators, notes, or other references may be used.

1. (3 points) Find *symmetric* equations $f(x) = g(y) = h(z)$ for the line ℓ which passes through the points $S = (3, 1, 2)$ and $T = (7, 3, 4)$.

2. (0 points) How many “equations” should $f(x) = g(y) = h(z)$ count as, when guessing the dimension of the solution space?

3. (4 points) Find an equation in x , y , and z for the plane P which contains the point $A = (-1, 4, 1)$, the point $B = (1, 2, -1)$, and the *midpoint* of the line segment \overline{ST} from problem 1.

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4. (3 points) What is the angle between the line ℓ from problem 1 and the plane P from problem 3? (Hint: Find the angle between ℓ and the normal vector to P , then subtract that angle from $\frac{\pi}{2}$.)

5. (2 points bonus) Draw or describe the picture on my office door.