Meramec **Intermediate Algebra** **Quiz 7 Solution** **Spring 2008**

NAME: _____Score_____/10

1. What is the slope of the line segment joining the points (2, -3) and (-5, 4)?

$$m = \frac{y_1 - y_2}{x_1 - x_2} = \frac{4-(-3)}{(-5)-2} = \frac{7}{-7} = -1$$

2. What is the length of the line segment joining the points (2, -3) and (-5, 4)?

$$d = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2} = \sqrt{(-5-2)^2 + (4-(-3)^2} = \sqrt{(-7)^2 + (7)^2} = \sqrt{2(7)^2} = 7\sqrt{2}$$

3. What is the midpoint of the line segment joining the points (2, -3) and (-5, 4)?

Midpoint is $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right) = \left(\frac{2+(-5)}{2}, \frac{(-3)+4}{2}\right) = \left(-\frac{3}{2}, \frac{1}{2}\right)$

4. What is the slope of the perpendicular bisector of the line segment joining the points (2, -3) and (-5, 4)?

The slope of a line perpendicular to the given line seqment will be the negative reciprocal of the given line segment. So the slope of the desired perpendicular bisector is 1.

5. What is the slope of the line through (1,1) and parallel to line segment joining the points (2, -3) and (-5, 4)?

The slope of the desired line will be the same as the given line so it is -1.