Algebra 201-007-50 03
Quiz 4
September 19, 2008

Name: SOLUTIONS

Student Number:

1. *(2 points)* Find the midpoint of the line segment between the two points $(4, 1)$ and $(5, -7)$.

$(x_m, y_m) = \left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$

$= \left(\frac{4+5}{2}, \frac{1+(-7)}{2}\right)$

$= \left(\frac{9}{2}, \frac{-6}{2}\right)$

$= \left(\frac{9}{2}, -3\right)$

2. *(8 points)* Find the equation of the line that passes through the point $(-6, 3)$ and is perpendicular to the line $9x - 3y + 10 = 0$.

$-3y = -9x - 10$

$\frac{-3y}{-3} = \frac{-9x}{-3} - \frac{10}{-3}$

$y = 3x + \frac{10}{3}$

$\therefore m_1 = 3$

$m_1 \cdot m_2 = -1$

$3 \cdot m_2 = -1$

$m_2 = -\frac{1}{3}$

$y = mx + b, \; m = -\frac{1}{3}, \; b = ?$

① $3 = -\frac{1}{3}(-6) + b$

$3 = 2 + b$

$1 = b$

$\therefore \boxed{y = -\frac{1}{3}x + 1}$