Worksheet # 1

Review from Math 416: Finding the equation of a line when you know the slope and one point

1. Determine the equation of a line if m = -4 and it passes through the point (-4, 0).

$y = mx + b$

$0 = (-4)(-4) + b$

$0 = 16 + b$

$-16 = b$

EQN

$y = -4x - 16$

2. Determine the equation of a line if m = $-\frac{4}{3}$ and it passes through ($\frac{2}{5}$, $\frac{1}{4}$) .

$y = mx + b$

$\frac{1}{4} = \left(-\frac{4}{3}\right)\left(\frac{2}{5}\right) + b$

$\frac{1}{4} = \frac{-8}{15} + b$

$\frac{1}{4}\cdot\frac{15}{15} + \frac{8}{15}\cdot\frac{4}{4} = b$

$\frac{15}{60} + \frac{32}{60} = b$

$\frac{47}{60} = b$

EQN

$y = -\frac{4}{3}x + \frac{47}{60}$

3. Determine the equation of a line if m = $\frac{1}{3}$ and it passes through ($\frac{3}{4}$, $\frac{2}{3}$) .

$y = mx + b$

$\frac{2}{3} = \left(\frac{1}{3}\right)\left(\frac{3}{4}\right) + b$

$\frac{2}{3} = \frac{3}{12} + b$

$\frac{2}{3}\cdot\frac{4}{4} - \frac{3}{12} = b$

$\frac{8}{12} - \frac{3}{12} = b$

$\frac{5}{12} = b$

Eqn

$y = \frac{1}{3}x + \frac{5}{12}$

4. Determine the equation of a line if m = -3 and it passes through (- 2, 0).

$y = mx + b$

$0 = (-3)(-2) + b$

$0 = 6 + b$

$-6 = b$

EQN

$y = -3x - 6$

5. Determine the equation of a line if m = $-\frac{9}{4}$ and it passes through ($-\frac{1}{6}$, $\frac{2}{5}$)

$y = mx + b$

$\frac{2}{5} = \left(\frac{9}{4}\right)\left(\frac{-1}{6}\right) + b$

$\frac{2}{5} = \frac{9\div 3}{24\div 3} + b$

$\frac{2}{5} = \frac{3}{8} + b$

$\frac{2}{5}\cdot\frac{8}{8} - \frac{3}{8}\cdot\frac{5}{5} = b$

$\frac{16}{40} - \frac{15}{40} = b$

$\frac{1}{40} = b$

Eqn

$y = -\frac{9}{4}x + \frac{1}{40}$