Math Worksheet: Equations of lines (1)

1. Find the equation of the line defined as follows:

   A. It passes through the points (-3 , 3) and (0 , 6).

   slope: $m = \frac{6-3}{0-(-3)} = 1$

   $y - y_1 = m(x - x_1) \Rightarrow y - 6 = 1 \cdot (x - 0)$, $y = x + 6$

   B. It passes through the point (1 , 0) and is perpendicular to the line

   $-2x + 4y = 2$

   m_2: slope of $-2x + 4y = 2$: $m_2 = \frac{1}{2}$

   $m_1 \cdot m_2 = -1 \Rightarrow m_1 = -2$, $y - 0 = -2(x - 1)$

   $y = -2x + 2$

   C. It has a slope equal to -3 and a y intercept at (0 , 4).

   $y = -3x + 4$

2. Find the slope and the y intercept of the line $5x + 4y = -8$

   slope m: $y = -\frac{5}{4}x - \frac{8}{4}$, $m = -5/4$

   y- int : $(0, -2)$

3. Find the equation of the line passing through the point (1 , 2) and has slope equal to - 4. Graph the equation.

   $y - 2 = -4(x - 1)$

   $y = -4x + 6$

   $x = 0 \quad y = 6$

   Another point to check:

   $x = 2$, $y = -2$