Warm-up Problems - March 30, 2007

1. Find the $x$-intercept (the $x$-coordinate of where it crosses the $x$-axis) for the following lines:

   (a) $y = 3x + 5$

   (b) $y = -32x + 154$

   (c) $y = mx + b$

   (d) $y - y_0 = m(x - x_0)$

Lecture Problems

2. Use Newton’s method to find approximate the zero of the functions given:

   (a) $f(x) = x^3 - 2, \quad x_0 = 2$

   $\begin{array}{|c|c|}
   \hline
   n & x_n = x_{n-1} - \frac{f(x_{n-1})}{f'(x_{n-1})} \\
   \hline
   0 & 2 \\
   1 & \\
   2 & \\
   3 & \\
   4 & \\
   5 & \\
   \hline
   \end{array}$

   (b) $f(x) = x^2 - 2x - 7, \quad x_0 = 4$

   $\begin{array}{|c|c|}
   \hline
   n & x_n = x_{n-1} - \frac{f(x_{n-1})}{f'(x_{n-1})} \\
   \hline
   0 & 4 \\
   1 & \\
   2 & \\
   3 & \\
   4 & \\
   \hline
   \end{array}$

   (c) $f(x) = x^2 - 2x - 7, \quad x_0 = -2$

   $\begin{array}{|c|c|}
   \hline
   n & x_n = x_{n-1} - \frac{f(x_{n-1})}{f'(x_{n-1})} \\
   \hline
   0 & -2 \\
   1 & \\
   2 & \\
   3 & \\
   \hline
   \end{array}$

   (What is the difference between the last two problems?)