1. Given is the line with equation $y = 3x - 2$.

   (a) Find five points on the line and arrange them in a table.
   Answer

$y = 3x - 2$	
x	y
-2	-8
0	-2
1	1
3	7
10	28

   (b) Graph the line.

   Answer See the graph on the last page.

   (c) Find the x-intercept and the y-intercept.

   Answer To find the x-intercept let $y = 0$ in $y = 3x - 2$ and solve for x.
   Thus, the x-intercept is the point $(\frac{2}{3}, 0)$.
   To find the y-intercept let $x = 0$ in $y = 3x - 2$ and solve for y.
   Thus, the y-intercept is the point $(0, -2)$.

2. Find the slope-intercept form of the equation of the line through the points $(2, 7)$ and $(5, 2)$ and graph it.

   Answer First calculate the slope. $m = \frac{7-2}{2-5} = -\frac{5}{3}$. So far we have

   $$y = -\frac{5}{3}x + b$$

   To solve for b we substitute the coordinates of a point on the line, for example $(2, 7)$. Then at the point $(2, 7)$ we have

   $$7 = -\frac{5}{3} \cdot 2 + b \iff b = 7 + 2 \cdot \frac{5}{3} \iff b = \frac{31}{3}$$

   and so the answer is

   $$y = -\frac{5}{3}x + \frac{31}{3}$$

   We should check our work by verifying that the other point also lies on the line.
   In other words, substituting the point $(5, 2)$ we should obtain an identity.

   $$2 = -\frac{5}{3} \cdot 5 + \frac{31}{3} = -\frac{25}{3} + \frac{31}{3} = \frac{6}{3} = 2$$

   Q.E.D.

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