BC Math 9 Two-Variable Linear Relations 1 (solutions)
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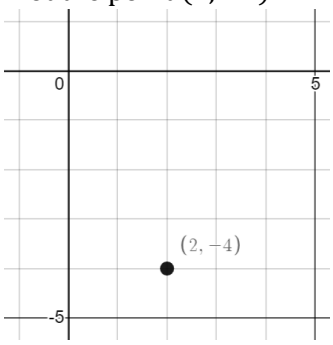
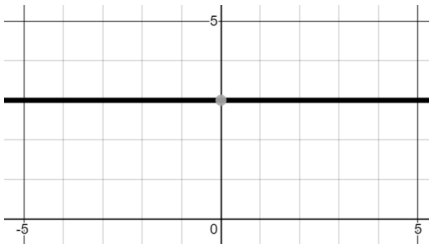
1. Plot the point $(2, -4)$



2. $y = 3$
   a. Sketch this line

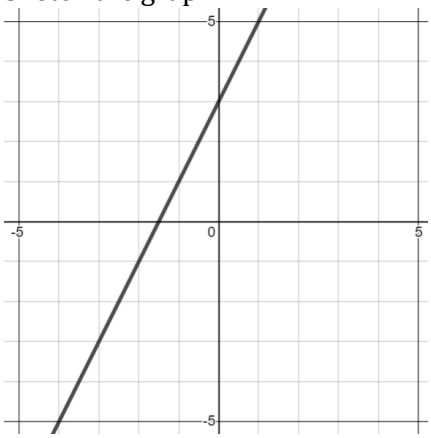


   b. What quadrants is this line in?
   Quadrants I and II

3. $y = 2x + 3$
   a. Create a table of values

x	$y = 2x + 3$
0	3
1	5
2	7
3	9

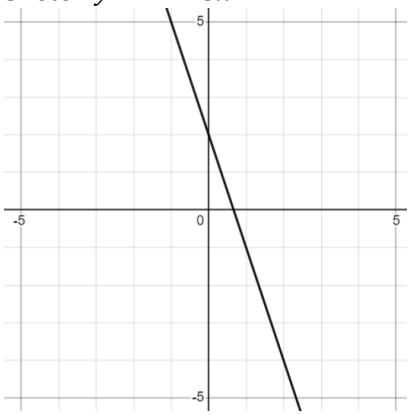
   b. Sketch the graph



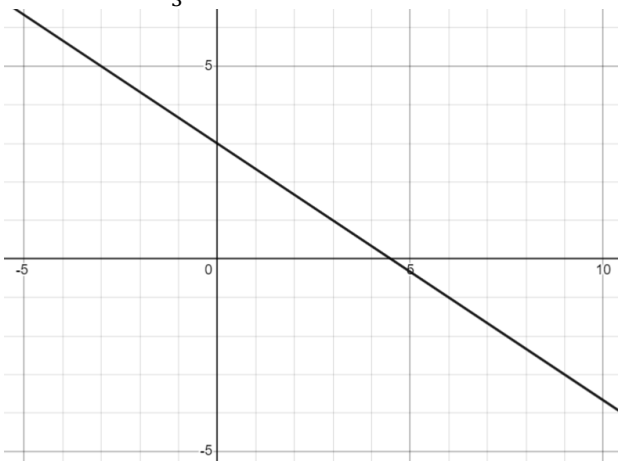
4. Given $y = mx + b$ what is the meaning of:
   a. m?
      slope

   b. b?
      y-intercept

5. Sketch $y = 2 - 3x$



6. Sketch: $y = \frac{-2}{3}x + 3$



7. Given the points (0,2) and (8,4)
   a. Find the slope
      1/4

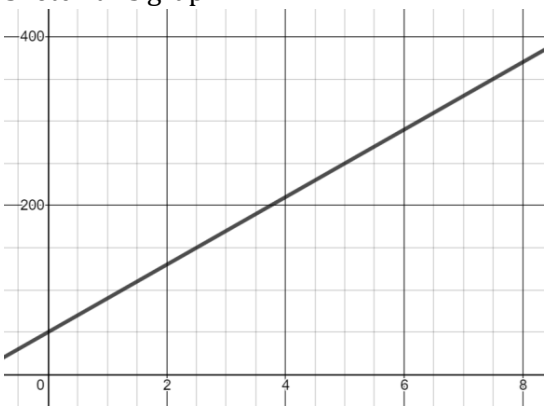
   b. Find the line equation in slope-point form: $y - y_1 = m(x - x_1)$
      $y - 2 = \frac{1}{4}(x - 0)$ or $y - 4 = \frac{1}{4}(x - 8)$

   c. Find the line equation in slope-intercept form: $y = mx + b$
      $y = \frac{1}{4}x + 2$

8. Given the point $\left(2\frac{1}{2}, -\frac{1}{2}\right)$ and $\left(4, -2\frac{1}{4}\right)$ find the slope
   $-7/6$

9. You make \$50 for showing up to your job site and you charge \$40 per hour
    a. What is the equation of the graph?
    $M(t) = 40t + 50$

    b. Sketch this graph



    c. How much do you make for working 8 hours?
    \$370

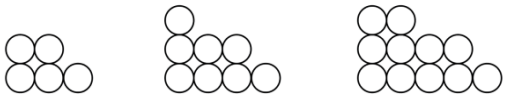
    d. How long do you have to work to earn \$290?
    $M = 40t + 50$
    $290 = 40t + 50$
    $240 = 40t$
    $6 = t$

10. You go canoeing and have an initial energy level of "72". Each km you travel you lose 3 units of energy
    a. Model your energy level, E, as a function of distance, d
    $E(d) = -3d + 72$

    b. How much energy will you have after travelling 10 km?
    $E(10) = -3(10) + 72 = 42$

    c. When do you run out of "energy"?
    $0 = -3d + 72$
    $3d = 72 \rightarrow d = 24$
    24 km

11. See figures 1, 2, and 3 below respectively:



    a. How many circles are in figure 100?
    302

    b. What figure number contains 131 circles?
    43

12. 10, 7, 4, 1, -2, … Find the 100th number
    $y = -3x + 13$
    $y = -3(100) + 13 = -287$