Tutorial Worksheet #2
Tuesday, May 15

Name: _____

Student Number: _____

Write your solutions to the following exercises on the provided paper. *Show all of your work.* Remember to use good notation and full sentences.

1. Find 3 pairs of solutions for each of the following equations.

   (a) $4x - 2y = 7$

   (b) $5 + 4y = -x$

   (c) $2x = -3y$

2. For each of the lines in Exercise 1, find the x and y intercepts and sketch the graphs of each line.

3. Find the slope of the line joining the points:

   (a) $(2, 3)$ and $(-4, 5)$

   (b) $(-2, -5)$ and $(-3, 0)$

4. Find the equation of each line from Exercise 3. Give your answers in:

   (i) Point-slope form;

   (ii) General form;

   (iii) Slope-intercept form.

5. Use Substitution to find the point of intersection (if any) of the pairs of lines $x - 3y = 1$ and $-2x + 6y = 2$.

6. Use Elimination to find the point of intersection (if any) of the pairs of lines $3x - 2y = 4$ and $5x + 3y = 7$.

7. Find the equation of the line perpendicular to the line $2x - 5y = -8$ and passing through the point $(-1, -1)$. Give your answer in general form.

8. Find the equation of the line parallel to the line $x - \frac{1}{4}y + 2 = 0$ and passing through the point of intersection of the lines $3x - 7y = 14$ and $2x + y = -2$. Give your answer in slope-intercept form.

9. What is the equation of the line perpendicular to the y-axis and passing through the point $(-2, 5)$?
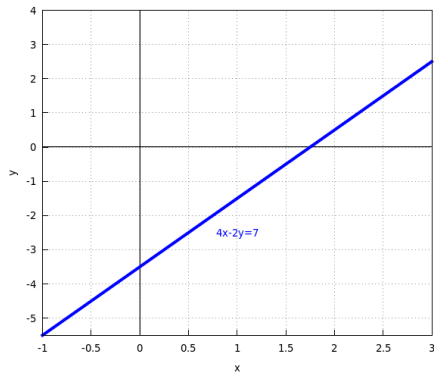
Brief Answers:

1. There are infinitely many possible answers here. Here are 3 possible such answers.

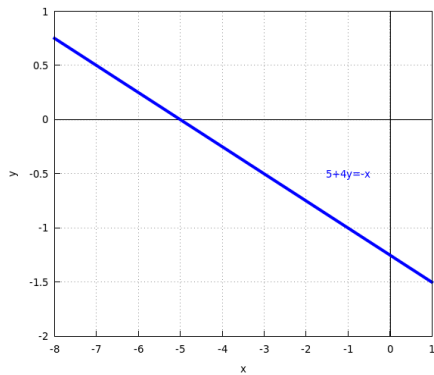   (a) $(0, -\frac{7}{2}), (\frac{7}{4}, 0), (1, -\frac{3}{2})$

   (b) $(-5, 0), (0, -\frac{5}{4}), (1, -\frac{3}{2})$

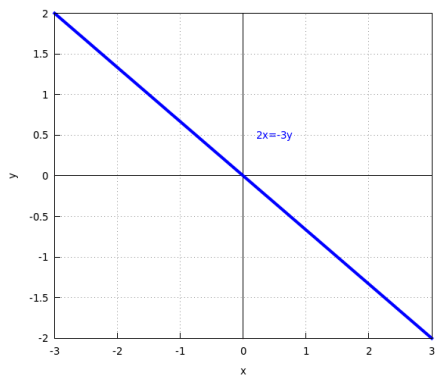   (c) $(0, 0), (1, -\frac{2}{3}), (2, -\frac{4}{3})$

2. (a) x-intercept is $x = \frac{7}{4}$; y-intercept is $y = -\frac{7}{2}$

   (b) x-intercept is $x = -5$; y-intercept is $y = -\frac{5}{4}$

(c) x-intercept is $x = 0$; y-intercept is $y = 0$

3. (a) $m = -\frac{1}{3}$

   (b) $m = -5$

4. (a) (i) $y - 3 = -\frac{1}{3}(x - 2)$
       (ii) $x + 3y = 11$
       (iii) $y = -\frac{1}{3}x + \frac{11}{3}$
   (b) (i) $y + 5 = -5(x + 2)$
       (ii) $5x + y = -15$
       (iii) $y = -5x - 15$

5. There is no intersection point and thus the lines do not intersect and must be parallel.

6. $\left(\frac{26}{19}, \frac{1}{19}\right)$

7. $5x + 2y = -7$

8. $y = 4x - 2$

9. $y = 5$