

## Seventh Set of Homework for Math 05

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**Please note:** You should fully justify your answers.

### 1 Linear equations in two variables

1. Decide whether the given pair is a solution to the given equation.

(a)  $2x - 5y = -4$ ;  $x = 3, y = 2$

(b)  $-3x - 2y = 7$ ;  $x = -2, y = -1$

(c)  $5x - 3y - 8 = 0$ ;  $(1, -1)$

(d)  $x = -2$ ;  $(-2, 5)$

(e)  $y = 3$ ;  $(5, -6)$

(f)  $x = -2y$ ;  $(1, 2)$

(g)  $y = -x + 5$ ;  $(-1, 4)$

(h)  $y = 5x - 2$ ;  $\left(-\frac{7}{5}, -9\right)$

(i)  $y = -\frac{3x}{2} + \frac{5}{4}$ ;  $\left(\frac{2}{3}, \frac{1}{4}\right)$

(j)  $y = -x^2$ ;  $(-2, -4)$

(k)  $y = -x^2$ ;  $(3, 9)$

2. Complete each of the following pairs so that it solves the given equation.

(a)  $2x + 3y = 0$ ;  $(\quad, -4)$

(b)  $-3x + 5y - 8 = 0$ ;  $(2, \quad)$

(c)  $y = \frac{x}{2} - 5$ ;  $(-4, \quad)$

(d)  $y = -7x + 3$ ;  $(\quad, 17)$

(e)  $y = 5x - 2$ ;  $(\quad, 11)$

(f)  $\frac{2}{5}y - 2x = \frac{3}{10}$ ;  $\left(\frac{3}{4}, \quad\right)$

3. Find five solutions for each of the following equations.

(a)  $x - y = 5$

(b)  $-3x + 6y = 12$

(c)  $2x - 3y = 6$

(d)  $y = \frac{x}{3} - 4$

(e)  $x = -1$

4. The first coordinate of a solution of the equation:

$$-2x + 3y = -4$$

is one more than twice the second coordinate. Find that solution.

5. Is there a solution of the equation

$$6x - 3y = 7$$

so that the second coordinate is twice the first?

6. The coordinates of a solution to the following equation

$$2x + 3y = -47$$

are consecutive integers. What's the solution?

7. Write down five linear equations in two variables that have as solution the pair  $(-2, 5)$ .

## 2 Cartesian Coordinate Systems

1. Give the coordinates of each of the points in Figure 1.

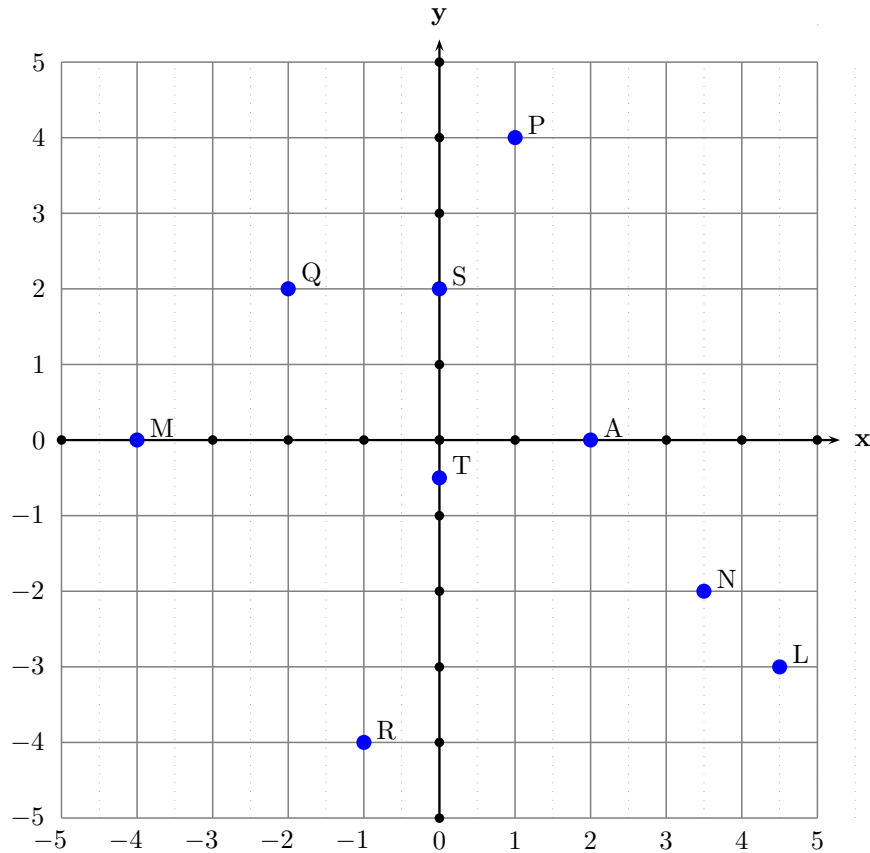


Figure 1: The points of Question 1

2. Plot the following points in the grid below.

$$M(0, 3), N(-4, 0), P(-3, -1), Q(2, 4), R\left(\frac{9}{5}, -4\right), S\left(-1, \frac{1}{2}\right), T\left(-\frac{13}{5}, -\frac{9}{2}\right)$$

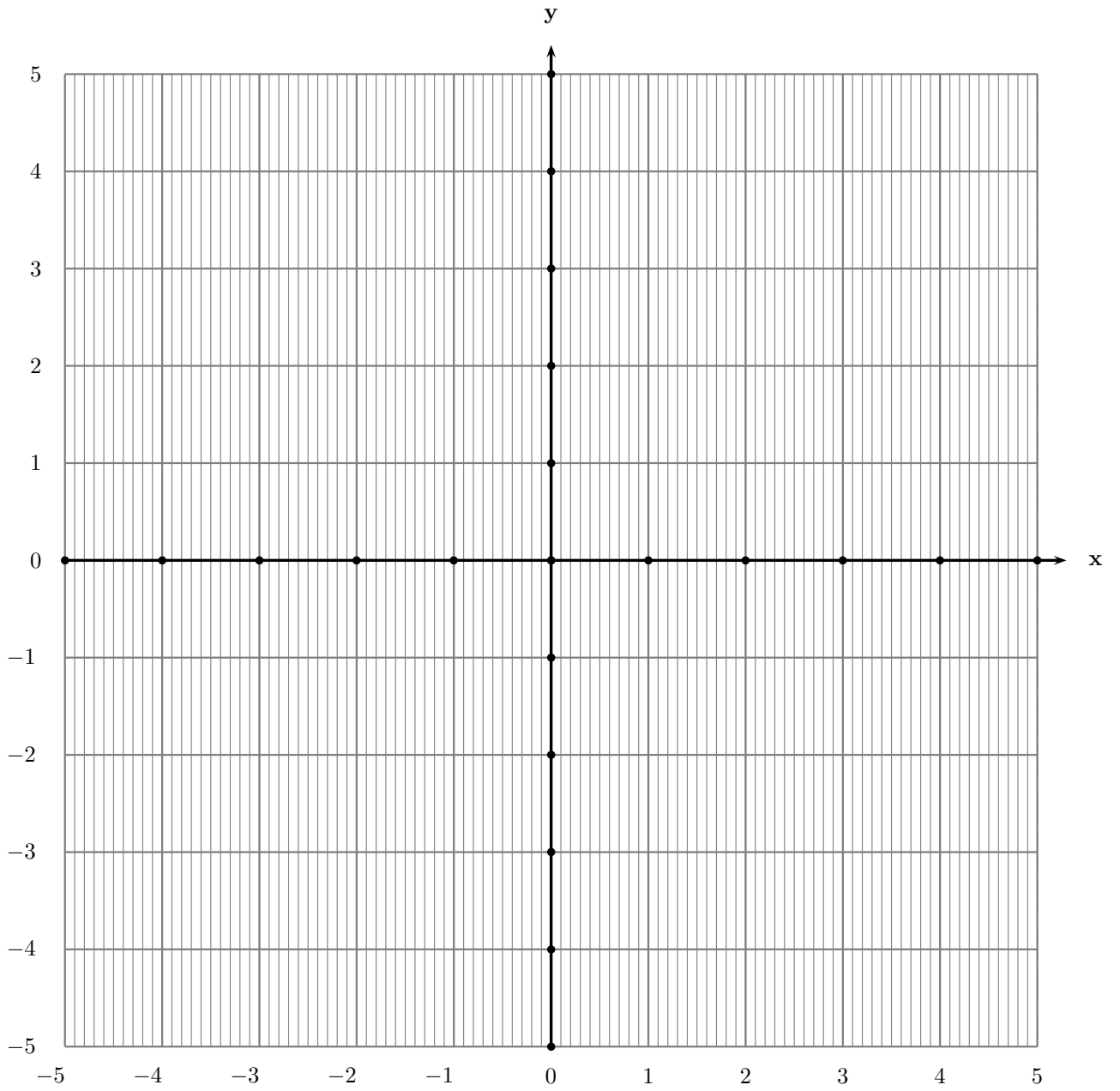


Figure 2: A grid

3. For each of the linear equations of Question 4 of the previous set of exercises, plot the five solutions you found on the given graph. If some of your solutions are too big to fit in the graph calculate new solutions that do fit.

### 3 Graphing Linear Equations

1. Graph each of the following linear equations:

(a)  $x + y = 4$

(b)  $x - y = -2$

(c)  $y = 3x$

(d)  $x = 0$

(e)  $y = -2$

(f)  $x = 3$

(g)  $y = -2x + 3$

(h)  $-2x + 5y = 10$

(i)  $2x - 3y = -6$

(j)  $y = -3x - 1$

(k)  $y = \frac{3x}{2} + 2$

(l)  $y = -\frac{1}{2}x + 1$

(m)  $2y = 3x - 12$