Problem Set #1

Graph each equation.

1) $x^2 + y^2 = 25$
2) $y = \frac{1}{2}x + 3$
3) $y = x^2 + 6x + 5$
4) $y = 2x^3 - 3x + 1$
5) $y = x^4 - 5x^2 + 4$

Problem Set #2

On the previous problem set we were able to graph equations making a table and then plotting points. While the method of making a table and plotting points can be reliable, it is time consuming and tedious.

You may have noticed on the last problem set that the equations without any exponents ended up having graphs that were straight lines. Such equations are called *linear equations*. Mathematicians are always searching for more efficient ways to do things; this problem set is focused on finding quicker ways to graph linear equations.

1) Graph each of the following on the same graph by making a table and then plotting points.

   a) $y = 2x + 1$

   b) $y = 2x - 3$

   c) $y = 2x + 4$

   d) $y = 2x - 6$

2) With the above equations, what does the number at the end of the equation tell you?

3) Graph each of the following on the same graph by making a table and then plotting points.

   a) $y = 2x + 1$

   b) $y = {}^{2}/_{5}\, x + 1$

   c) $y = {}^{5}/_{2}\, x + 1$

   d) $y = -{}^{5}/_{2}\, x + 1$

   e) $y = -{}^{3}/_{5}\, x + 1$

4) In each of the above equations, what does the number before the “x” tell you?

5) Now, given what you have learned above, graph each of the following <u>without</u> making a table .

   a) $y = {}^{3}/_{2}\, x - 4$

   b) $y = -{}^{1}/_{3}\, x - 2$

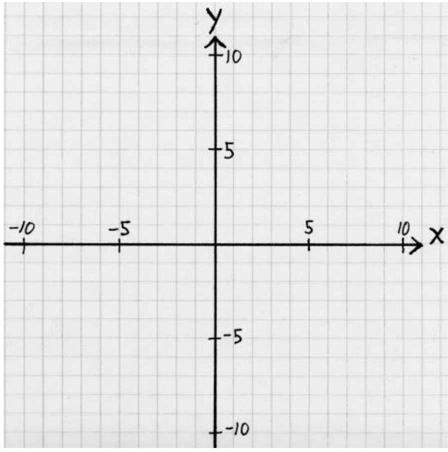
   c) $y = -3x$

Two Forms

In general, there are two common forms for expressing linear equations. One is called *standard form*, where there are no fractions and the x’s and y’s are both on the left side, such as:

$$4x + 3y = 15$$

If we now solve this equation for y, then we get *slope-intercept form*, which for the above equation is: $y = -\frac{4}{3}x + 5$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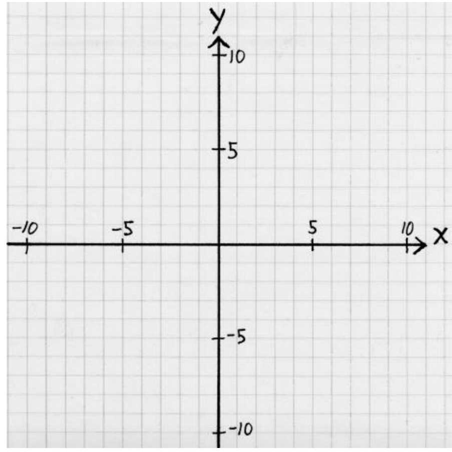
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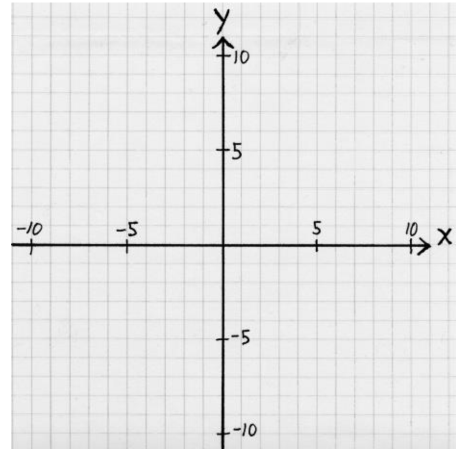
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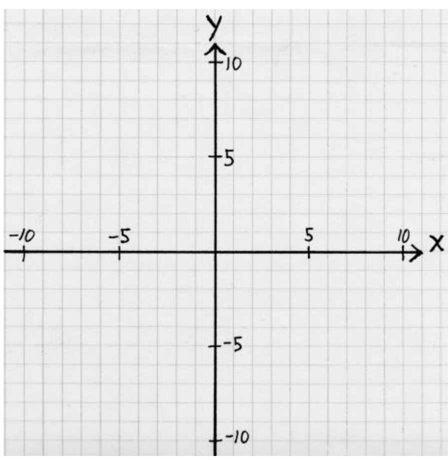
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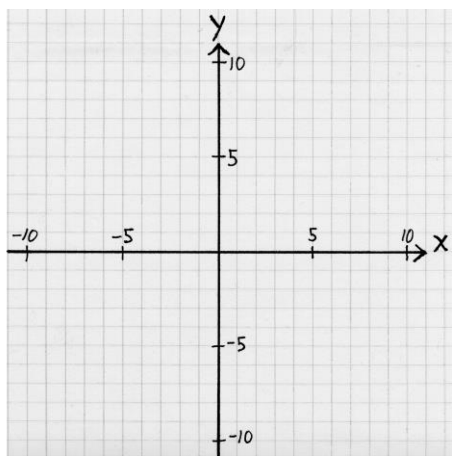
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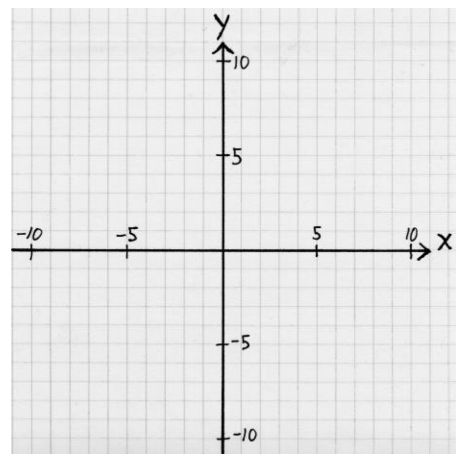
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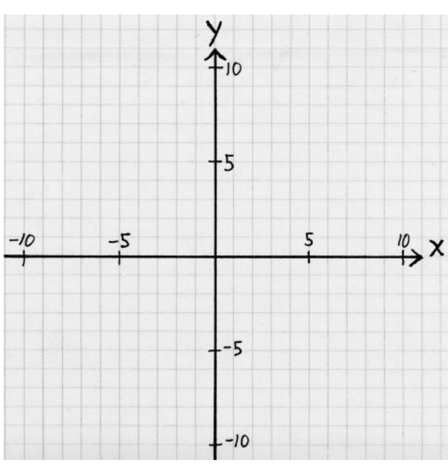
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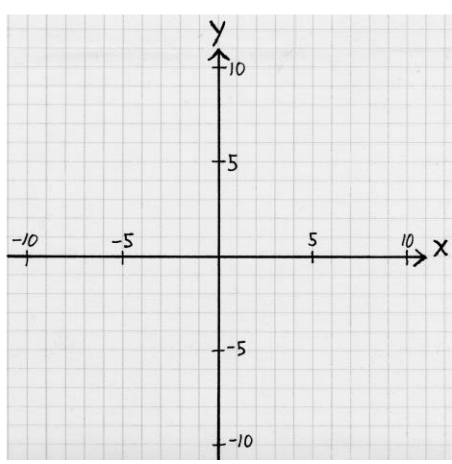
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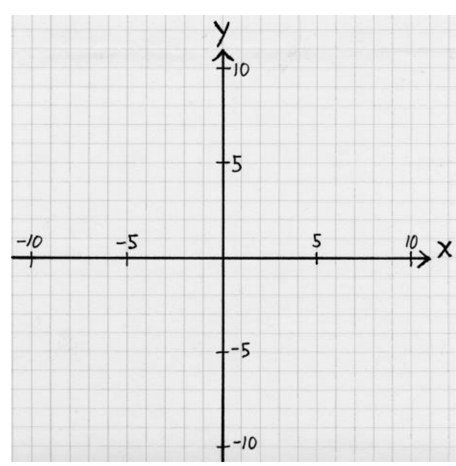
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