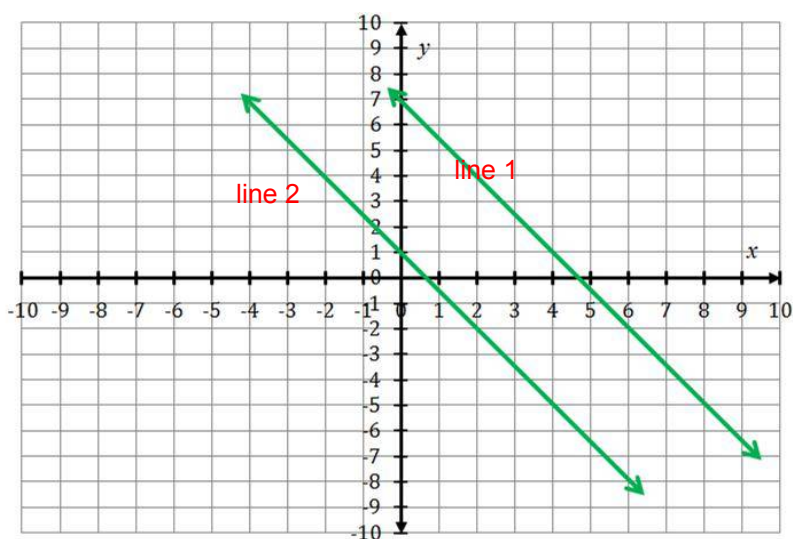


Parallel and Perpendicular Lines Handout

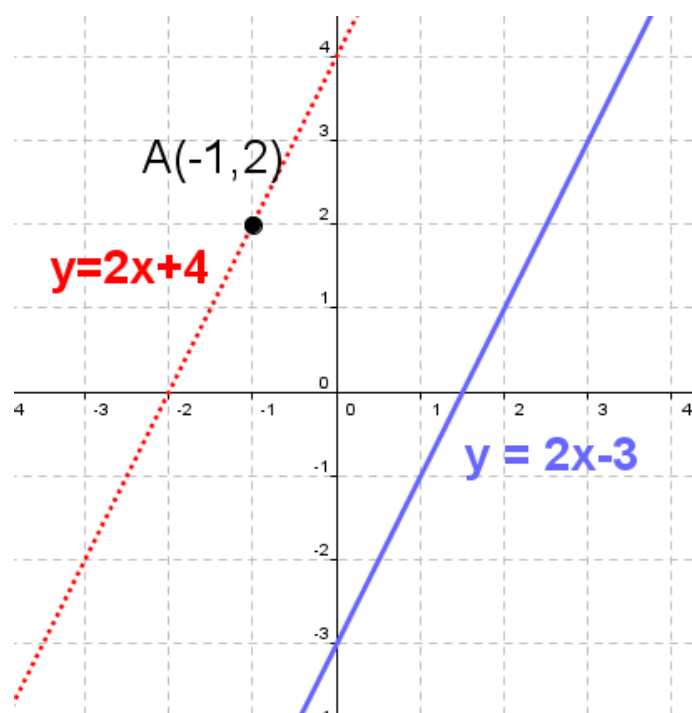
Day 2: Equations of Parallel Lines

Find the slopes of the following lines, and then write the equation for each line.



What do you notice about the equations for the above lines?

Parallel and Perpendicular Lines Handout

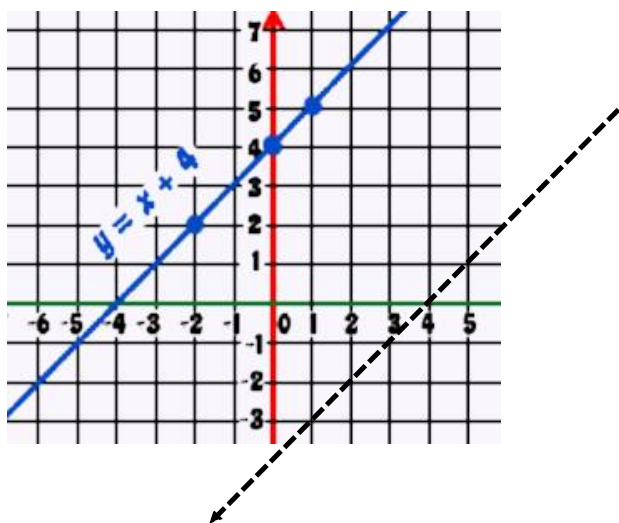


Parallel lines have
THE SAME SLOPE,
but they have
different y-intercepts!

Now let's do some problems that incorporate everything that we have reviewed so far!

Parallel and Perpendicular Lines Handout

Find the equation of the dotted line below, given that it is parallel to the solid line, and also given that it passes through (4 , 0).



now you try....

Parallel and Perpendicular Lines Handout

1. Determine the equation of the line that passes through point $(- 6 , \frac{1}{2})$ and is parallel to the line whose equation is $4x - 3y = 2$.

2. Determine the equation of the line that passes through point $(- 2 , \frac{3}{2})$ and is parallel to the line whose equation is $x - \frac{4}{5}y = - 5$.

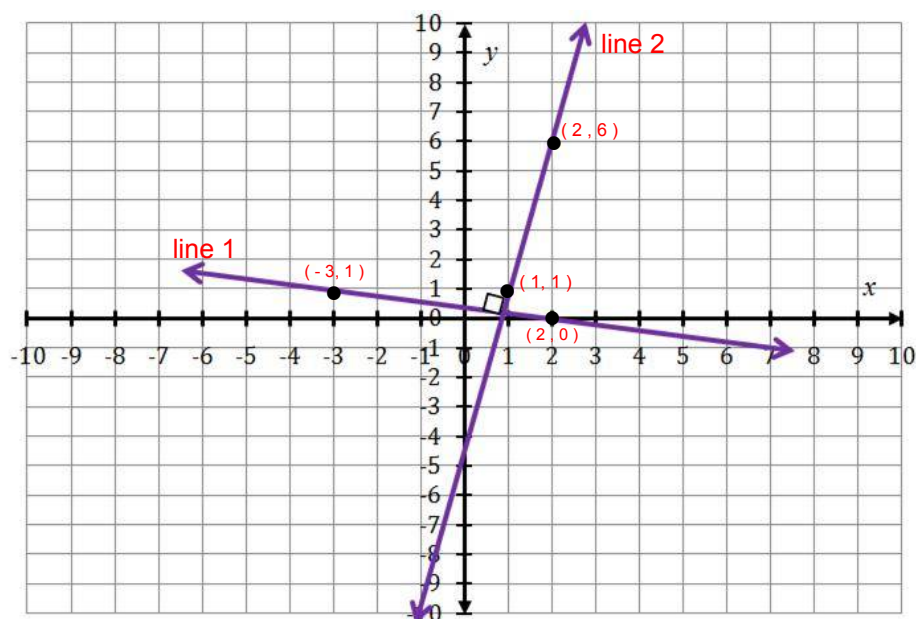
Parallel and Perpendicular Lines Handout

3. Determine the equation of the line that passes through point $(\frac{4}{9}, -\frac{1}{3})$ and is parallel to the line whose equation is $-3x + 2y = -4$.

4. Determine the equation of the line that passes through $(6, \frac{3}{4})$ and is parallel to the line whose equation is $-x + \frac{6y}{5} = -\frac{1}{5}$.

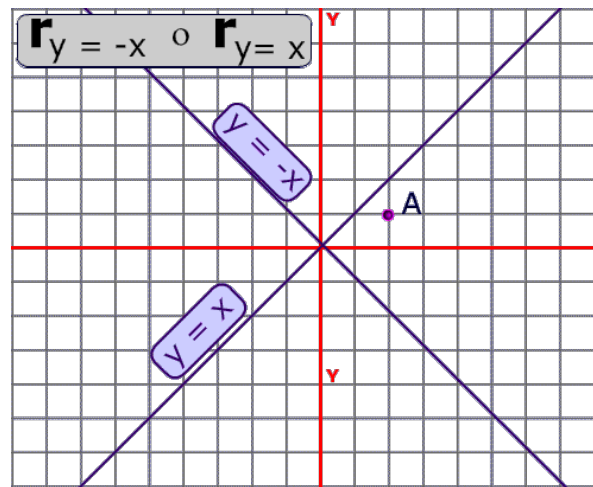
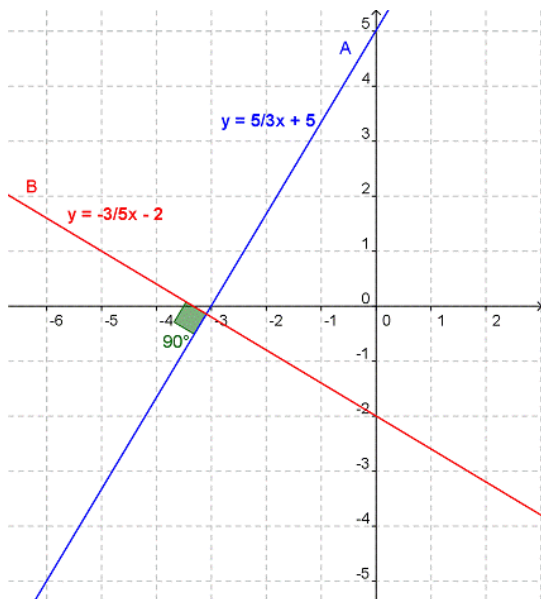
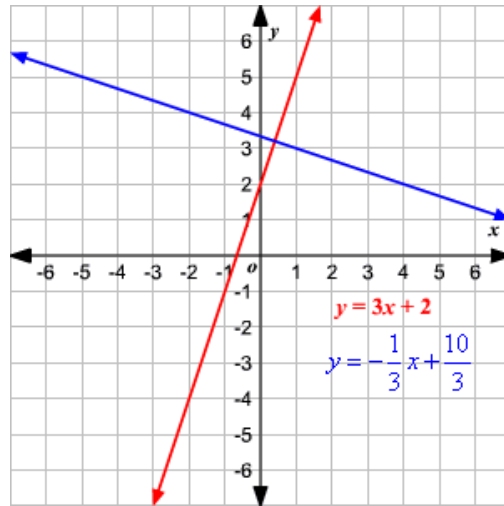
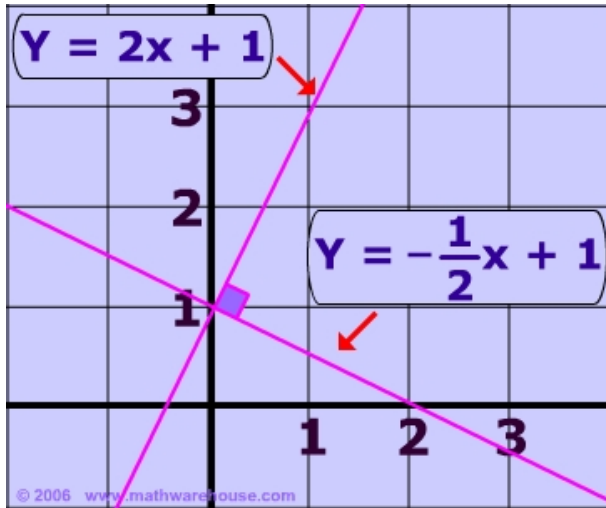
Parallel and Perpendicular Lines Handout

Equations of Perpendicular Lines



Calculate the slopes of each of the lines above, and then write the equation for each line.

Parallel and Perpendicular Lines Handout



What do you observe about the slopes of two perpendicular lines?

Parallel and Perpendicular Lines Handout

Remember: For two perpendicular lines..... $m_1 \times m_2 = -1$

The table below shows the slopes for a number of lines, a -
In the column on the right, write the slope for the line that is
perpendicular to the lines given. The table is started for you...

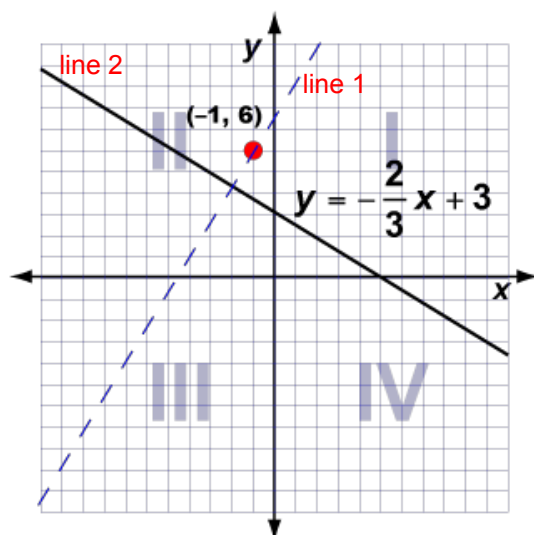
| Slope of line given | Slope of line perpendicular to line given |
|-----------------------|---|
| a) $m = 2$ | $m = -\frac{1}{2}$ |
| b) $m = -\frac{1}{3}$ | $m = 3$ |
| c) $m = \frac{3}{4}$ | |
| d) $m = -4$ | |
| e) $m = 1$ | |
| f) $m = -\frac{7}{3}$ | |
| g) $m = -1$ | |
| h) $m = 3.47$ | |
| i) $m = \frac{5}{4}$ | |
| j) $m = -0.28$ | |

Don't forget that if one of the slopes is negative then the other is positive!

Students usually remember to "flip" the slope, but they sometimes forget to change the sign!

Parallel and Perpendicular Lines Handout

Find the equation of the dotted line (line 1), given that line 1 is perpendicular to line 2.



Parallel and Perpendicular Lines Handout

Now you try these:

1. Determine the equation of the line that passes through point $(\frac{7}{6}, -\frac{5}{2})$ and is perpendicular to the line whose equation is $7x - 3y + 2 = 0$.

2. Determine the equation of the line that passes through $(-5, -\frac{1}{2})$ and is perpendicular to the line whose equation is $3x - \frac{6y}{5} - 3 = 0$.

Parallel and Perpendicular Lines Handout

3. Determine the equation of the line that passes through $(\frac{1}{4}, 3)$ and is perpendicular to the line whose equation is $2x - 4y + 6 = 0$.

4. Determine the equation of the line that passes through $(-6, -\frac{1}{3})$ and is perpendicular to the line whose equation is $6x - \frac{2y}{3} - 9 = 0$.

Parallel and Perpendicular Lines Handout