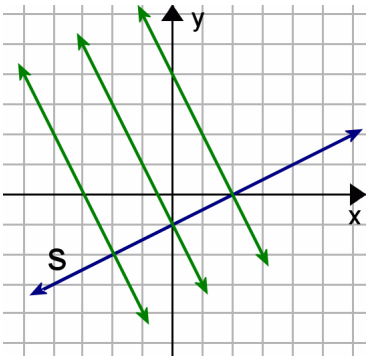
Parallel and Perpendicular Lines

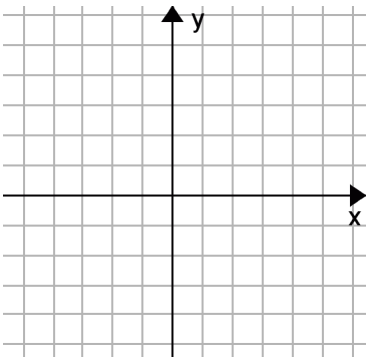
1. Three lines are perpendicular to the line s, with equal "space" between them.



a. Find the equation of the line s.

b. Find the equations of the three lines perpendicular to it. Give you answers in slope-intercept form.

2. Similar to the problem above, draw a line *t* with the equation $y = -1/3x + 3$. Then draw three lines that are perpendicular to it and write their equations.



3. Of the equations below, find the two whose graphs are parallel and the two whose graphs are perpendicular to each other.

a. $y = 5x - 1$ **b.** $1 = \frac{1}{5}x + y$ **c.** $x - 5y - 10 = 0$ **d.** $x - \frac{1}{5}y + 2 = 0$

4. Write the equation of the line that satisfies the given requirements.

a. is parallel to the line $2x + y = -\frac{1}{2}$; passes through the point (0, 2)

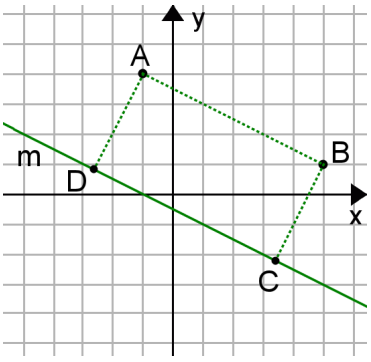
b. is perpendicular to the line $y = 3x - 1$ and passes through the point (0, 0)

c. is parallel to the line $6x = 4y$ and passes through the point (−3, −5)

d. is perpendicular to the line $y = -\frac{3}{5}x + 7$; passes through the point (1, 6)

5. Determine if the triangle with vertices (2, 5), (4, 0), and (0, −2) is a right triangle.

6. Points A(-1, 4) and B(5, 1) are two vertices of the rectangle ABCD. The other two lie on the line *m* with equation $2y + x + 1 = 0$.



Find the equations of the lines in standard form that go through the points A and D, the points A and B, and the points B and C.