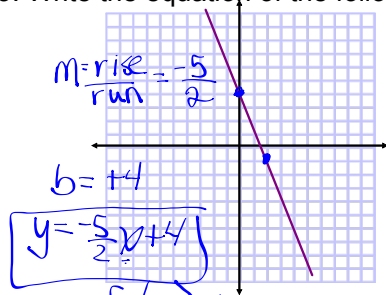


1. Draw the line with the equation  $y = -2/6x - 7$
2. Write the equation of the line passing through the points  $(4, 5)$  and  $(0, -3)$
3. Write the equation of the following line:



If the x value is 100, what will be the y value?

$$y = -\frac{5}{2}(100) + 4$$

$$y = \frac{-500}{2} + 4$$

$$y = -250 + 4$$

$$y = -246$$

$$4 + \boxed{0} = 10$$

$(100, -246)$

If  $y = -46$ , what is  $x$ ?

$$y = -\frac{5}{2}x + 4$$

$$-46 = -\frac{5}{2}x + 4$$

$$-50 = -\frac{5}{2}x$$

$$-50 = -2.5x$$

$$\frac{-100}{-5} = \frac{-5x}{-5}$$

$$x = 20$$

43

$$y = 4x + 7$$

$(x, y)$   
 $(9, 43)$

What is the point when ~~at~~ y is 43?

$$43 = 4x + 7$$

$$\frac{36}{4} = \frac{4x}{4}$$

$$x = 9$$

$$(4, 5)$$
$$y = 2x + b \quad y = 2x - 3$$

$$5 = 2(4) + b$$

$$5 = 8 + b$$

$$-3 = b$$



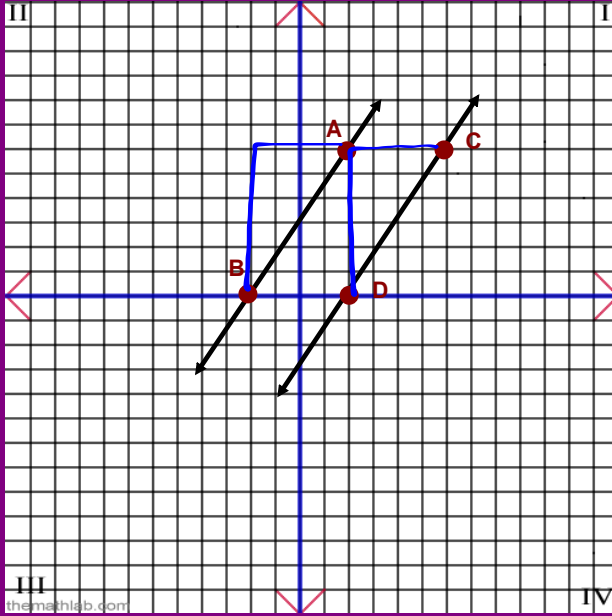
# Parallel Lines



**Parallel Lines** are two lines that are always the same distance apart, and that never intersect.

# Parallel Lines

Calculate the slope of  
AB & DC



$$\begin{array}{l}
 \text{1st } x_1, y_1 \quad \text{2nd } x_2, y_2 \\
 (-2, 0) \quad (2, 6) \\
 m_{AB} = \frac{y_2 - y_1}{x_2 - x_1} \\
 \frac{6 - 0}{2 - (-2)} \\
 \frac{6}{4} = \frac{3}{2}
 \end{array}
 \qquad
 \begin{array}{l}
 \text{1st } x_1, y_1 \quad \text{2nd } x_2, y_2 \\
 (2, 0) \quad (6, 6) \\
 m_{DC} = \frac{y_2 - y_1}{x_2 - x_1} \\
 \frac{6 - 0}{6 - 2} \\
 \frac{6}{4} = \frac{3}{2}
 \end{array}$$

What Do You Notice?

Slopes of parallel lines are equal

When given an equation  $y = mx + b$

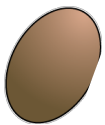
Two lines that are parallel will have the same "m"

Example:  $y = \boxed{3}x + 7$  &  $y = \boxed{3}x + 144$   
 $m = 3$   $m = 3$

1) What is the slope of a line parallel to  $y = \boxed{5}x - 6$ ?  
 $m = 5$  *Same slope*  $m = 5$

2) What is the slope of a line parallel to  $y = \boxed{\frac{-6}{7}}x - 10$  ?

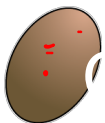
1 What is the slope of a line parallel to AB?



-2



$\frac{1}{2}$

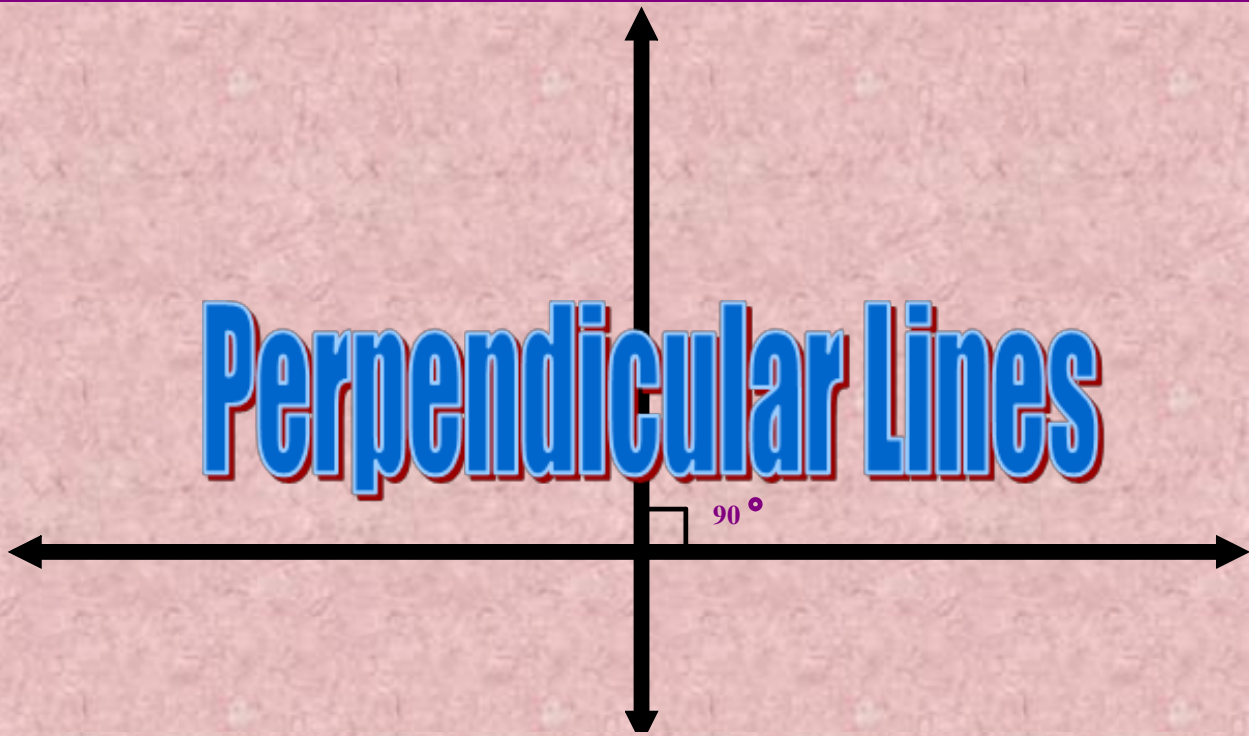


2



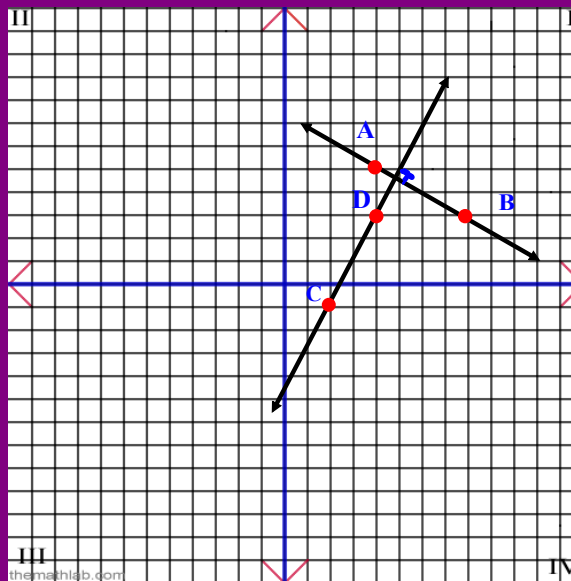
Slope of AB = 2

# Perpendicular Lines



Perpendicular Lines are two lines that intersect to form a  $90^\circ$  angle. (Right Angle)

10-50-250-5-  
Lines



Calculate the slope of  
AB & DC

AB 1<sup>st</sup> (4, 5) 2<sup>nd</sup> (8, 3)

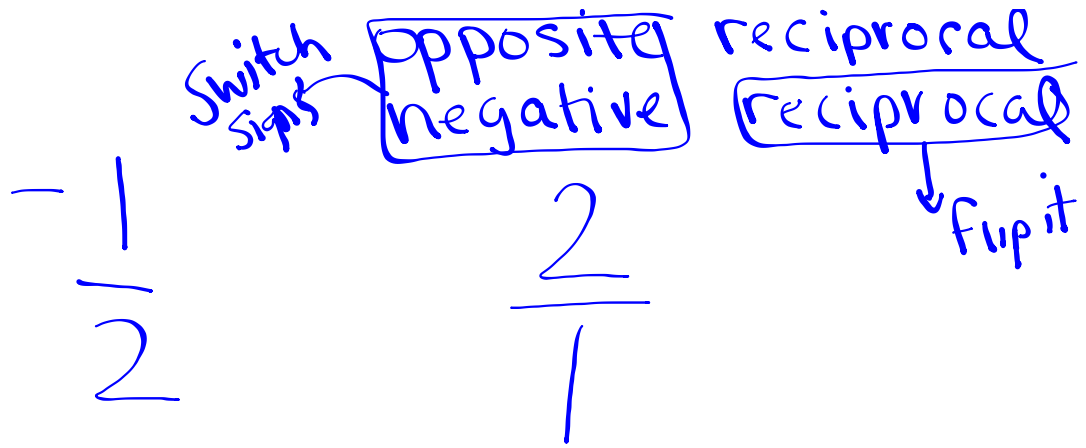
$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\frac{3 - 5}{8 - 4} = \frac{-2}{4} = -\frac{1}{2}$$

CD 1<sup>st</sup> (2, -1) 2<sup>nd</sup> (4, 3)

$$\frac{3 - (-1)}{4 - 2} = \frac{4}{2} = 2$$

What Do You Notice?



Therefore if the slopes of two lines are

**OPPOSITE RECIPROCAL**

we can say the lines are perpendicular

**Therefore AB is perpendicular to DC**



2 What is the slope of a line perpendicular to AB?

A

$$\frac{3}{4}$$

$$\text{Slope of AB} = -\frac{3}{4}$$

B

$$\frac{4}{3}$$

C

$$-\frac{3}{4}$$

$$m = \frac{3}{4} \quad m_{\perp} = -\frac{4}{3}$$



Class/Homework

# 3

# 4

# 5

# 6

# 8

# 9

Pg 349

## Attachments

---

Parallel.doc

Perpendicular and Parallel lines.docx