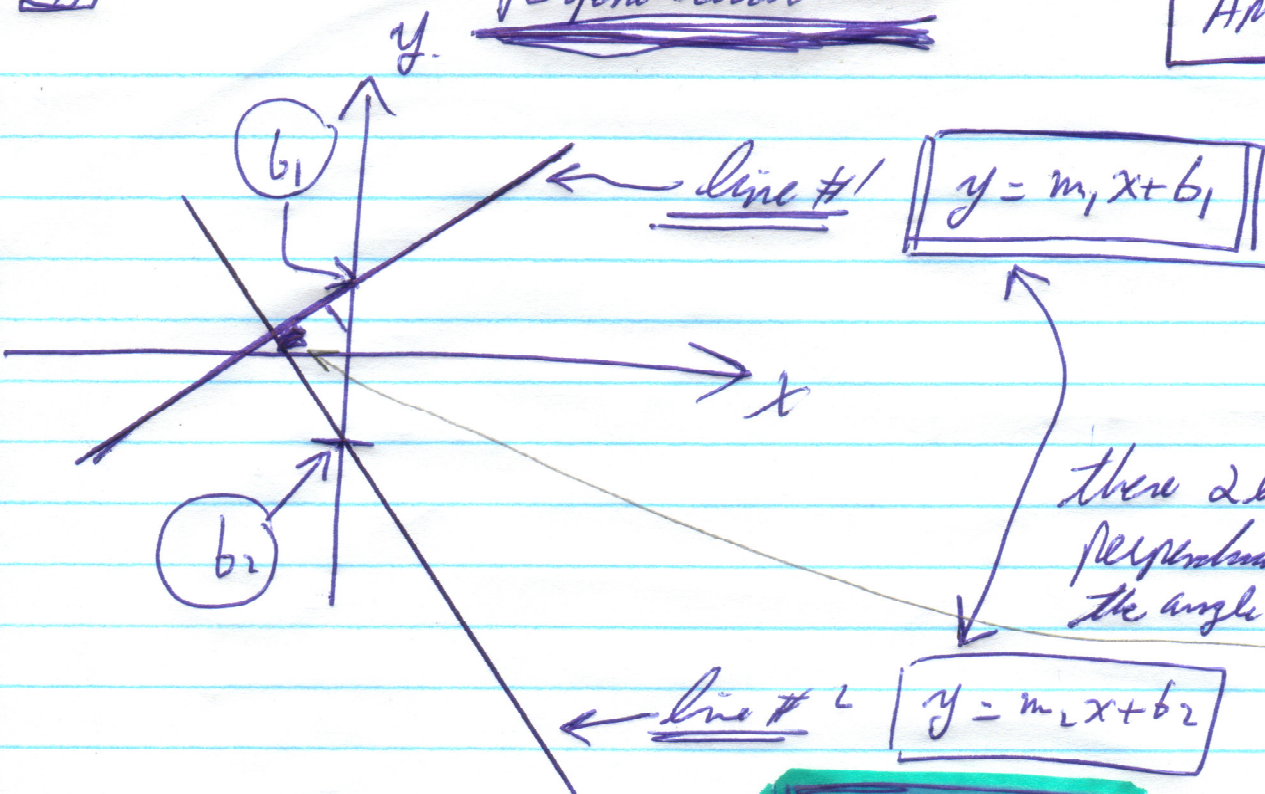




# Perpendicular lines

M. Alchalla  
April 23, 2012



these 2 lines are perpendicular because the angle between them is  $90^\circ$

$$m_1 \cdot m_2 = -1$$

if 2 lines are perpendicular then this rule on the slopes will always be true!

Ex #1: Find the line perpendicular to the line  $2x + y = 2$  and passing through the point  $(-3, 0)$

line #1:  $2x + y = 2$   $\Rightarrow$   $y = -2x + 2$

$m_1 = -2$  ← 1st slope

$y = m_2x + b_2$  ← perpendicular line

$$m_2 = \frac{-1}{m_1} = \frac{-1}{(-2)} = \frac{1}{2}$$

2

$$y = m_2x + b_2$$

$$y = \frac{1}{2}x + b_2$$

to get "b" insert a point  
May (-3, 0)

$$y^0 = \left(\frac{1}{2}\right)(-3) + b_2$$

$$0 = -\frac{3}{2} + b_2$$

$$b_2 = \frac{3}{2}$$

$$y = \frac{x}{2} + \frac{3}{2}$$

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

Common!

