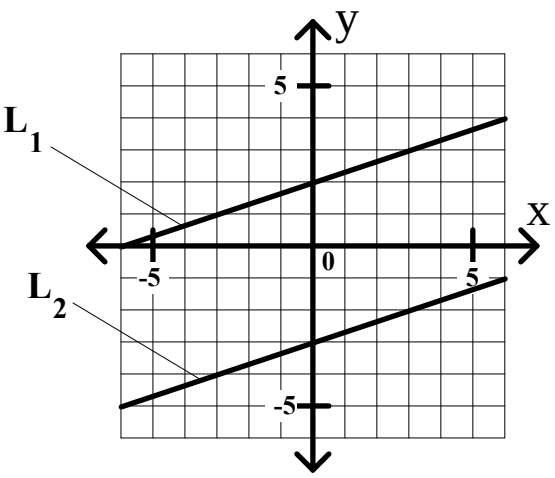
General Algebra II Class Notes #3 Unit 2 page 1

Parallel Lines

Given: L_1 and L_2 are two oblique lines with slopes, m_1 and m_2, respectively.
L_1 is parallel to L_2 if and only if $m_1 = m_2$.

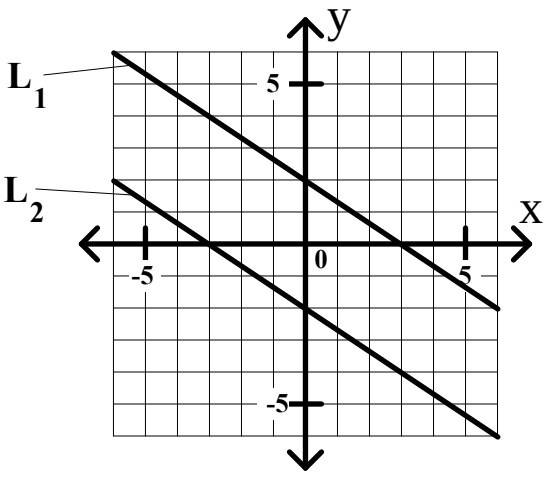
Any two horizontal lines are parallel. Any two vertical lines are parallel.

Example 1: Parallel Lines



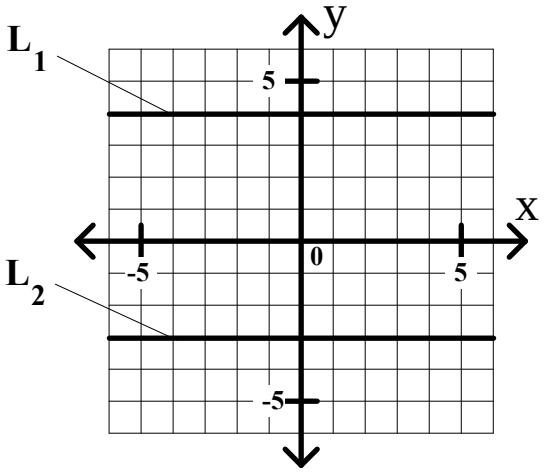
$m_1 = m_2 = \frac{1}{3}$

Example 2: Parallel Lines



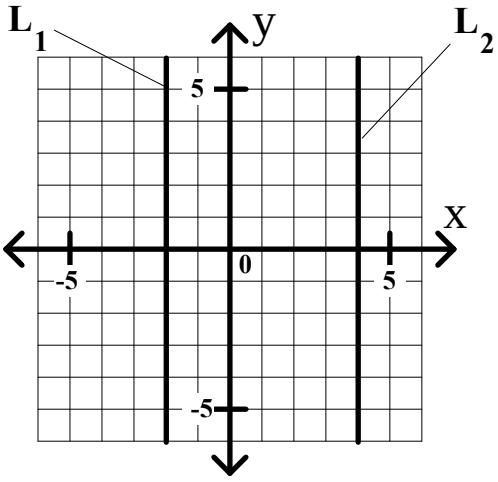
$m_1 = m_2 = \frac{-2}{3}$

Example 3: Parallel Lines



Horizontal lines are parallel.

Example 4: Parallel Lines



Vertical lines are parallel.

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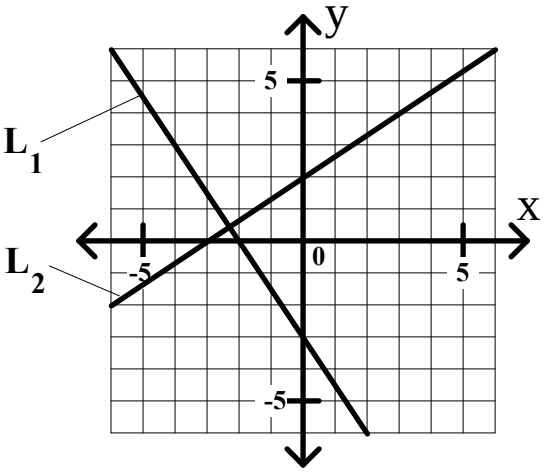
Perpendicular Lines

Given: L_1 and L_2 are two oblique lines with slopes, m_1 and m_2, respectively.
L_1 is perpendicular to L_2 if and only if $(m_1)(m_2) = -1$.
Note: m_1 is the 'negative reciprocal' of m_2.

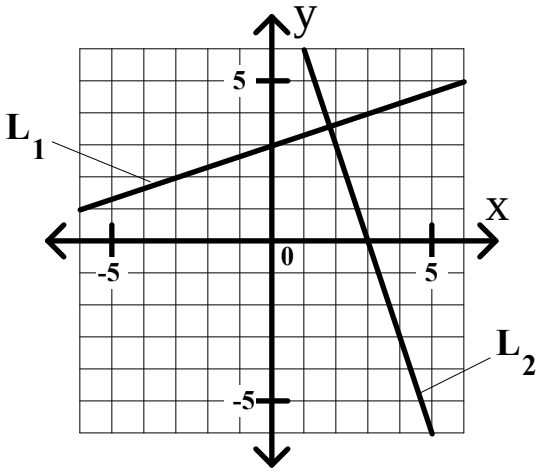
If L_1 is a horizontal line and L_2 is a vertical line, then L_1 is perpendicular to L_2.

Example 1: Perpendicular Lines



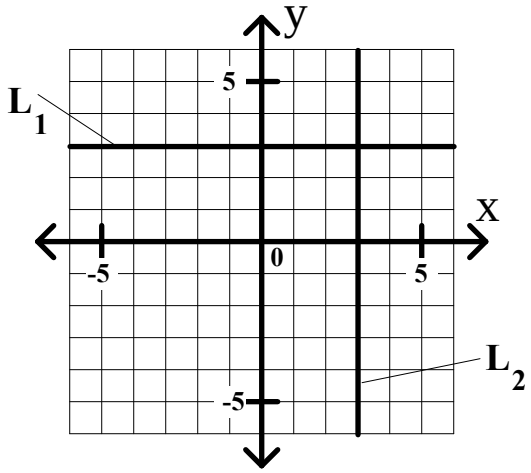
$m_1 = \frac{-3}{2}$ $m_2 = \frac{2}{3}$

Example 2: Perpendicular Lines



$m_1 = \frac{1}{3}$ $m_2 = -3$

Example 3: Perpendicular Lines



Any horizontal line is perpendiculr to any vertical line.