

Are lines L1 and L2 passing through the given pairs of points parallel, perpendicular or neither?

L1 (-10, -3) (6, 5)

L2 (1, 5) (3, 1)

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{5 - (-3)}{6 - (-10)} = \frac{8}{16} = \frac{1}{2}$$

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

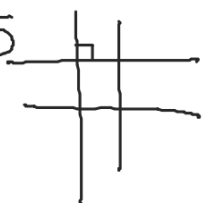
⊥

L1 (-2, 4) (-2, -3)

L2 (-3, 6) (8, 6)

$$m = \frac{-3 - 4}{-2 - (-2)} = \frac{-7}{0} = \text{undefined}$$

$$m = \frac{6 - 6}{8 - (-3)} = \frac{0}{11} = 0$$



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L1 (-5, 7) (-5, 12)

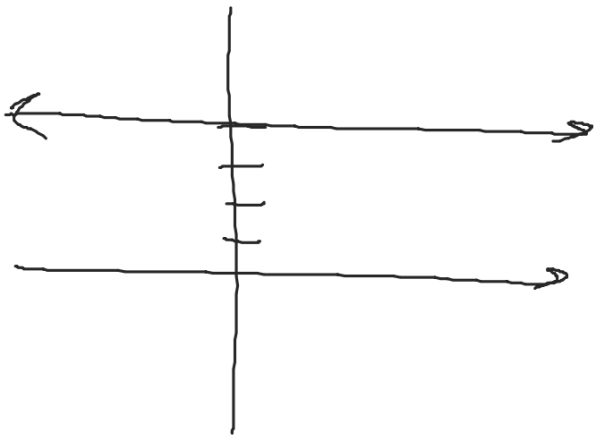
L2 (4, -6) (8, -6)

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$$3y = 12$$

$$y = 4$$

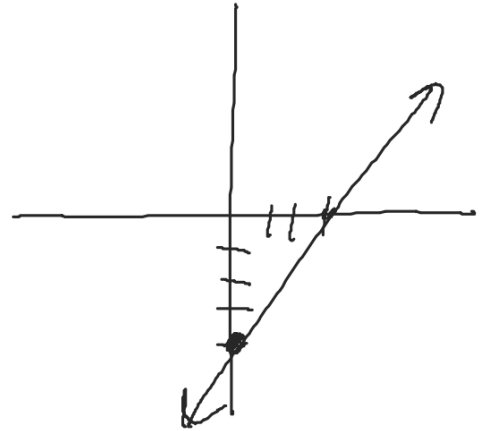
$$y = 0x + 4$$



$$\frac{x}{3} - \frac{y}{4} = 1$$

$$-\frac{y}{4} = -\frac{x}{3} + 1$$

$$y = \frac{4}{3}x - 4$$



Find x-intercept

Let $y=0$ solve for x

Find y-intercept

Let $x=0$ and solve for y

Systems of equations

Substitution

$$\begin{aligned}
 1) \quad y &= 6x - 11 & y &= 6(2) - 11 \\
 -2x - 3y &= -7 & &= 1 \\
 -2x - 3(6x - 11) &= -7 \\
 -2x - 18x + 33 &= -7 \\
 -20x &= -40 & (2, 1) \\
 x &= 2
 \end{aligned}$$

$$\begin{aligned}
 2) \quad 2x - 3y &= -1 \\
 y &= x - 1
 \end{aligned}$$

$$2x - 3(x - 1) = -1$$

$$2x - 3x + 3 = -1$$

$$(4, 3) \quad -x + 3 = -1$$

$$-x = -4$$

$$x = 4$$

$$\begin{aligned}
 3) \quad y &= -3x + 5 \\
 5x - 4y &= -3
 \end{aligned}$$

$$\begin{aligned}
 4) \quad -3x - 3y &= 3 \\
 y &= -5x - 17
 \end{aligned}$$

$$5x - 4(-3x + 5) = -3$$

$$5x + 12x - 20 = -3$$

$$17x = 17$$

$$x = 1$$

$$(1, 2)$$

$$1) -4x - 2y = -12$$

$$(+)\ 4x + 8y = -24$$

$$6y = -36$$

$$y = -6$$

$$(6, -6)$$

$$4x + 8(-6) = -24$$

$$4x - 48 = -24$$

$$4x = 24$$

$$x = 6$$

$$2) 4x + 8y = 20$$

$$(+)\ -4x + 2y = -30$$

$$10y = -10$$

$$y = -1$$

$$4x + 8(-1) = 20$$

$$4x = 28 \quad x = 7$$

$$4) -6x + 5y = 1$$

$$(+)\ 6x + 4y = -10$$

$$9y = -9$$

$$y = -1$$

$$6x - 4 = -10$$

$$6x = -6$$

$$x = -1$$

$$(-1, -1)$$

$$3) x - y = 11$$

$$(+)\ 2x + y = 19$$

$$3x = 30$$

$$x = 10$$

$$10 - y = 11$$

$$-y = 1$$

$$y = -1$$

$$(10, -1)$$

$$9) \begin{cases} 5x + y = 9 \\ 10x - 7y = -18 \end{cases}$$

$$\begin{aligned} 5x + 4 &= 9 \\ 5x &= 5 \\ x &= 1 \end{aligned}$$

$$\begin{aligned} 10x + 2y &= 18 \\ (-) 10x - 7y &= -18 \end{aligned}$$

$$\begin{aligned} 9y &= 36 & (1, 4) \\ y &= 4 \end{aligned}$$

$$10) \begin{cases} -4x + 9y = 9 \\ x - 3y = -6 \end{cases}$$

$$-4x + 9y = 9$$

$$(-) 3x - 9y = -18$$

$$\begin{aligned} -x &= -9 \\ x &= 9 \end{aligned} \quad (9, 5)$$

$$9 - 3y = -6$$

$$-3y = -15$$

$$18) \begin{cases} 5x + 4y = -30 \\ 3x - 9y = -18 \end{cases} \quad y = 5$$

$$15x + 12y = -90$$

$$(-) 15x - 45y = -90$$

$$-33y = -180$$

$$33y = 180$$

$$y = 0$$

$$17) \begin{cases} -7x - 8y = 9 \\ -4x + 9y = -22 \end{cases}$$

$$-4x + 9(-2) = -22$$

$$-4x - 18 = -22$$

$$-4x = -4$$

$$x = 1$$

$$\begin{aligned} 28x + 32y &= -36 \\ -28x + 63y &= -154 \end{aligned}$$

$$(1, -2)$$

$$95y = -190$$

$$y = -2$$