

### Finding Intercepts

**x-intercept:** - where the line crosses the X axis

- coordinates  $(X, 0)$

-Strategy: replace y by 0

**y-intercept:** - where the line crosses the y axis

- coordinates  $(0, Y)$

-Strategy: replace x by 0

Examples:

1) Find the y-intercept of  $y=2x+1$

$$\begin{aligned} y &= 2(0) + 1 \\ y &= 1 \end{aligned} \quad \text{Ans: } (0, 1)$$

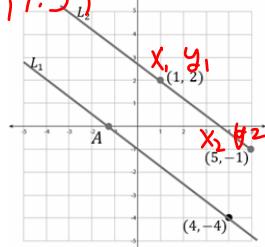
2) Find the x-intercept of  $y=-3x+12$

$$\begin{aligned} 0 &= -3x + 12 \\ -12 &= -3x \end{aligned} \quad \left| \begin{array}{l} x = 4 \\ \text{Ans: } (4, 0) \end{array} \right.$$

3) Find the x- and y-intercepts of  $5x+2y=15$

$$\begin{array}{c|c} \text{x-int:} & \text{y-int:} \\ \begin{aligned} 5x+2(0) &= 15 \\ 5x &= 15 \\ x &= 3 \\ (3, 0) & \end{aligned} & \begin{aligned} 5(0)+2y &= 15 \\ 2y &= 15 \\ y &= \frac{15}{2} = 7.5 \\ (0, 7.5) & \end{aligned} \end{array}$$

4)  $L_1$  is parallel to  $L_2$ . Find the coordinates of point A. Show all your work.



$$\begin{aligned} y &= ax+b \\ 1) a? & \\ a &= \frac{y_2-y_1}{x_2-x_1} \\ &= \frac{-1-2}{5-1} \\ &= -\frac{3}{4} \end{aligned}$$

$$\begin{aligned} 1) b? & \\ y &= -\frac{3}{4}x + b \\ -4 &= -\frac{3}{4}(4) + b \\ -4 &= -3 + b \\ b &= -1 \end{aligned}$$

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

$$\begin{aligned} 0 &= -\frac{3}{4}x - 1 \\ 1 &= -\frac{3}{4}x \\ -\frac{4}{3} &= -\frac{3}{4}x \\ x &= -\frac{4}{3} = -1.\bar{3} \end{aligned}$$

$$\therefore A(-1.\bar{3}, 0)$$