(i)

What is green distance

(ii)

(i) Distance = 2

(ii) Distance = 2.

Absolute value means answer has to be positive.

$|x|$ = absolute value of x.

$|x| = 5$ find x.

$\pm x = 5$

$x = \pm 5$

$|x-2| = 3 \Rightarrow \pm(x-2) = 3$

$x - 2 = 3$ $\qquad$ $x - 2 = -3$

$x = 5$ $\qquad$ $x = -1$.

Method 2: Square both sides.

$|x-2| = 3$

$x^2 - 4x + 4 = 9$

$x^2 - 4x - 5 = 0$

$(x-5)(x+1) = 0$

$x = 5$ $\qquad$ $x = -1$

Solve $|x-1| = 4$

$$\pm(x-1) = 4$$

$$x-1 = \pm 4$$

$x-1=4$ $\qquad$ $x-1=-4$

$x=5$ $\qquad$ $x=-3$

$$(x-1)^2 = 4^2$$

$$x^2-2x+1=16$$

$$x^2-2x-15=0$$

$$(x-5)(x+3)=0$$

$x=5$ $\qquad$ $x=-3$

$y = |x-1|$ $\qquad$ y must be positive

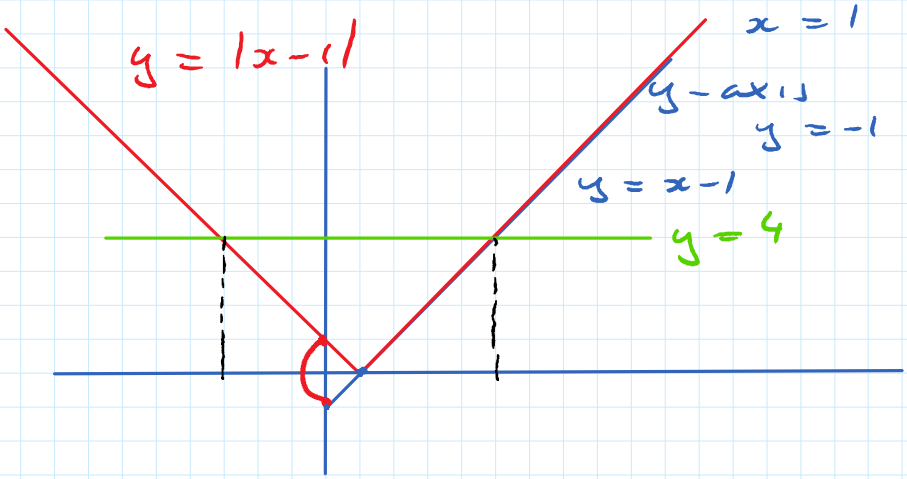
$y = x-1$ $\qquad$ x-axis $y=0$

$x-1=0$

$x=1$ $\qquad$ $(1,0)$

y-axis $x=0$

$y=-1$ $\qquad$ $(0,-1)$



Absolute value $|\,|$ – positive

Method (1) $\pm$

Method (2) Square

Method (3) Diagram

Use a diagram to solve

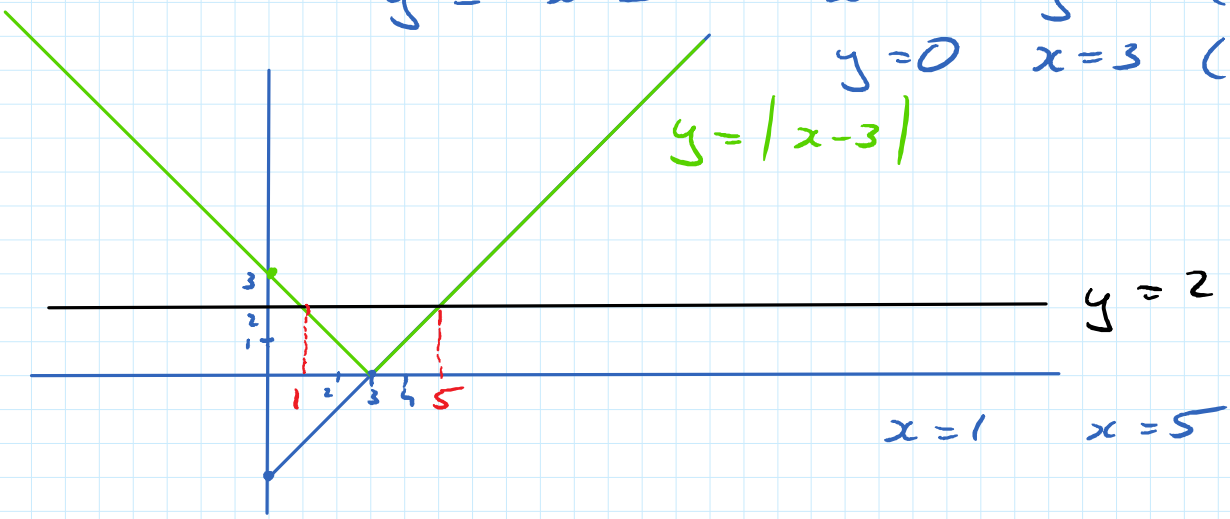
(1) $|x-3| = 2$

$y = |x-3|$ $\quad$ $y = 2$

$y = |x-3|$

$y = x-3$ $\quad$ $x = 0$ $\quad$ $y = -3$ $\quad$ $(0,-3)$

$y = 0$ $\quad$ $x = 3$ $\quad$ $(3,0)$



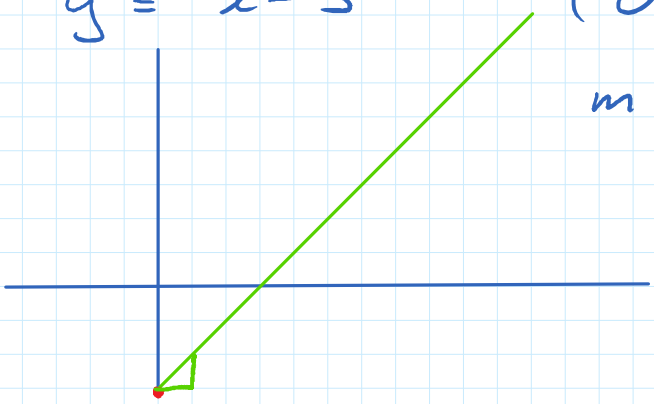
$|x-3| = 2$

$x-3 = 2$ $\quad$ $x-3 = -2$

$x = 5$ $\quad$ $x = 1$

$y = x-3$ $\quad$ $(0,-3)$

$m = 1$



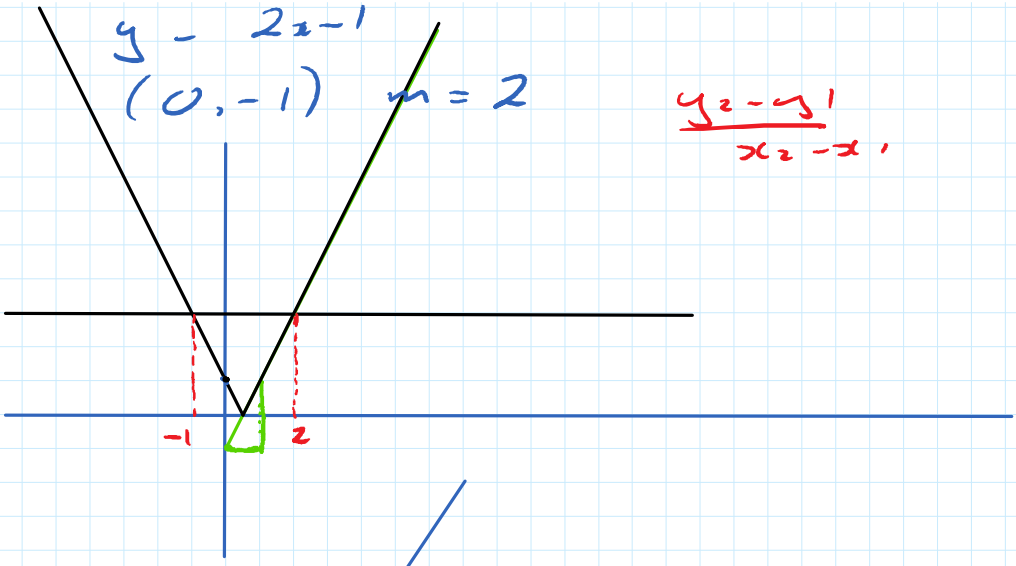
Solve $|2x-1| = 3$

$= |2x-1|$ $\quad$ $y = 3$

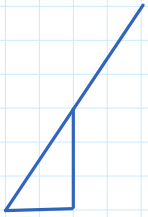
$y = 2x - 1$

$(0, -1)$ $m = 2$

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



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



change.

$m = -\frac{3}{2}$