

In order to sketch a parabola, I need to know the roots / x-intercepts.

x-intercept is when  $y = 0$ .

① factor + solve:

$$f(x) = x^2 - 3x - 10$$

• Set equation = 0

$$0 = x^2 - 3x - 10$$

② factor

use box + diamond

	$x$	$2$	
$-5$	$-5x$	$-10$	$-5$
$x$	$x^2$	$2x$	$x$
	$x$	$2$	

$-10x^2$	
$-5x$	$+2x$
	$-3x$

$1, 10$   
 $5, 2$

$$0 = 1(x-5)(x+2)$$

factored form!  
 $f(x) = a(x-r_1)(x-r_2)$   
 $r_1$  and  $r_2$   
are roots

③ Set each factor = 0

$$a \cdot b = 0$$

$$0 = (x-5)(x+2)$$


$$x-5=0 \quad \text{or} \quad x+2=0$$

④ Solve for x.

$$\begin{array}{r} x-5=0 \\ +5 \quad +5 \end{array} \quad \begin{array}{r} x+2=0 \\ -2 \quad -2 \end{array}$$

$$\boxed{x=5} \quad \text{and} \quad \boxed{x=-2}$$

⑤ Write solution set.  $\{ \quad \}$

$$x = \{ 5, -2 \} \quad (5,0) \text{ and } (-2,0)$$


When  $y=0$  my <sup>x-</sup>intercepts/roots/solutions =  $(5,0)$   
and  
 $(-2,0)$