

# Math 451

→ Visualize

"graph"  $\Rightarrow$   $y = x^2 - 4$   
 when is this true?  
 $x=2, y=0$   $(2,0)$   
 $x=-2, y=0$   $(-2,0)$

$x=1, y=-3$   $(1,-3)$   
 $x=-1, y=-3$   $(-1,-3)$

Soln  
 Set =  $\{ (2,0), (-2,0), (1,-3), (-1,-3), (0,-4), (3,5), (-3,5), \dots \}$

Soln  
 Set =  $\{ (a,b) \mid a^2 - 4 = b \}$

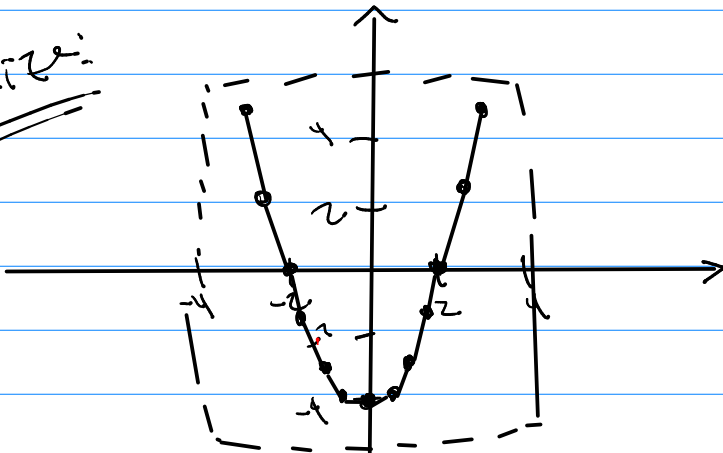
Solve  $x^2 - 4 = 0$   
 when is this true?

$1^2 - 4 = 0$   
 $-3 = 0$  False

$2^2 - 4 = 0$   
 $0 = 0$  true

$\boxed{2}$   
 $\boxed{-2}$

Visualize:



Soln Set  $y = x^2 - 4$

x	y
0	-4
1	-3
2	$-15/4 = -3.75$

→ linspace

(21)

$$y = x^3 - x + 2$$

$$x = \text{linspace}(-5, 5, 10);$$

$$y = x.^3 - x + 2;$$

$$\text{plot}(x, y, 'bo')$$

(See video)