

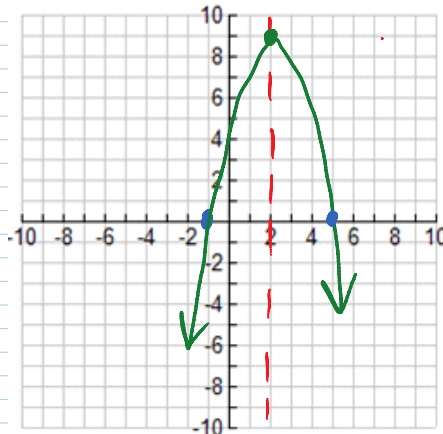
# Graphing Quadratics in Intercept Form

Intercept Form:  $y = a(x-p)(x-q)$

- the x-intercepts are  $\underline{p}$  &  $\underline{q}$
- the axis of symmetry is halfway between  $(p,0)$  &  $(q,0)$ . So the a. of s. is:  $\frac{p+q}{2}$
- if  $a$  is positive, the parabola UP  
 if  $a$  is negative, the parabola DOWN

**EX** Graph  $y = -2(x+1)(x-5)$  ↗ opens ↓

- Step 1: sketch in x-intercepts  
 Step 2: find axis of symmetry  
 Step 3: plug in x-coord. of vertex to solve for y-coord.  
 Step 4: connect dots & draw parabola



$$(x+1) = 0$$

$$x = -1$$

$$x-5 = 0$$

$$x = 5$$

$$\frac{-1+5}{2} = \frac{4}{2} = 2$$

$$y = -(2+1)(2-5)$$

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

**EX** Graph  $y = 2x^2 - 8$

Rewrite in Intercept Form:

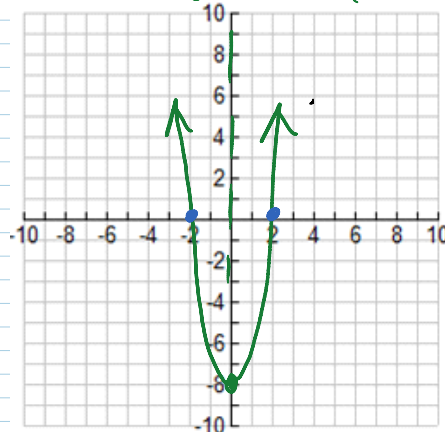
$$y = 2(x^2 - 4)$$

$$y = 2(x+2)(x-2)$$

$(-2, 0)$  &  $(2, 0)$

↑  
opens up

$$y = 2(0)^2 - 8$$



vertex:  
 $(0, -8)$

$$= -8$$