

minimum

maximum

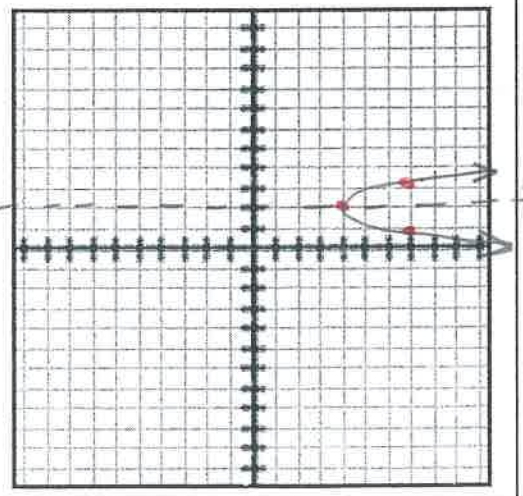
$y = -3(x - 2)^2 - 4$

1 vertex: (2, -4)

2 axis of symm:  $x = 2$

3 extra points

$\rightarrow x = 1$   
 $y = -3(1 - 2)^2 - 4$   
 $= -3(-1)^2 - 4$   
 $= -3(1) - 4$   
 $= -3 - 4$   
 $= -7$   
 (1, -7)

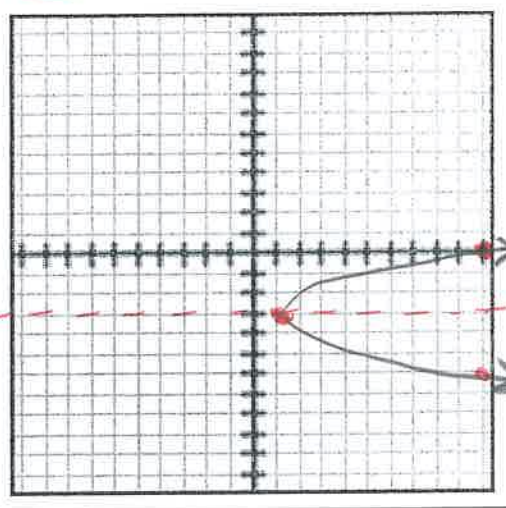


$y = x^2 - 6x - 10$  Standard form

1 y-intercept: (0, -10)

2 a.o.s.  $x = \frac{-b}{2a}$

$\rightarrow x = \frac{-(-6)}{2(-1)} = \frac{6}{-2} = -3$



3  $y = (-3)^2 - 6(-3) - 10$   
 $= -9 + 18 - 10$   
 $= 9 - 10$   
 $= -1$   
 vertex (-3, -1)

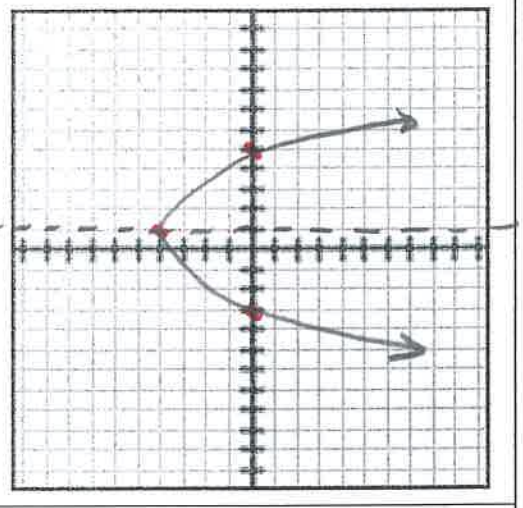
$y = -1/4(x + 3)(x - 5)$  Intercept form

1 (-3, 0) (5, 0) x-int

2 vertex  $x = \frac{-3+5}{2} = \frac{2}{2} = 1$

$\rightarrow y = -\frac{1}{4}(1+3)(1-5)$   
 $= -\frac{1}{4}(4)(-4)$   
 $= \frac{-1}{4}(-16)$   
 $= 4$  (1, 4)

3 a.o.s.  $x = 1$



Standard Form:  $Y = aX^2 + bX + c$

1. find the vertex  $X = \frac{-b}{2a}$  to start use the formula
  2. Substitute what you found in #1 into the function to find Y. The X and Y are the ordered pair for the vertex.
  3. find the axis of symmetry.  
Since every quadratic function is symmetric passes through the vertex.
- The equation is  $x = \frac{-b}{2a}$ .
4. find the Y-intercept is whatever C is in the function.
  5. find A point next to the A.O.S., then reflect over A.O.S. to give you another point.

Intercept Form:  $Y = a(X-p)(X-q)$

1. find X-intercepts they are the ordered pairs  $(p, 0), (q, 0)$
2. find the vertex find the middle of the X-intercepts by  $\frac{(p+q)}{2}$ . This will be the X-value of the vertex. Use that answer to plug into the function and find the corresponding Y. You have found the vertex!
3. find the axis of symmetry. PTG is the A.O.S! remember that the A.O.S. goes through the vertex, so the equation would be  $X = h$
4. find extra points next to the A.O.S. reflect over A.O.S. to give you another point.

Vertex Form:  $Y = a(X-h)^2 + k$

1. find the vertex is the ordered pair made up of (h, k)
2. find the axis of symmetry remember that the A.O.S. passes through the vertex, so the equation would be  $X = h$
3. find a point next to the A.O.S., then reflect it over the A.O.S. to give you another point.
4. find the Y-intercept Substituting 0 for X and solve for Y in the function.

How to change standard form into vertex form.

How to change vertex form into standard form.