

Intercept Form Notes

Intercept form is written $y = (x+p)(x+q)$ where p & q are the zeros, solutions or x-intercepts of the function.

Find the zeros.

- Set each of your factors equal to zero and solve for x.

1) $Y = (x-3)(x+2)$

$x-3=0$ $x+2=0$
 $x=3$ $x=-2$

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

$x = -4, 4$

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

$x = 0, 1$

Use the zeros to find the vertex and axis of symmetry.

- Find the zeros
- The x value of the vertex will be half way between the zeros or the midpoint. Average your zeros to find the x value of the vertex.
- Plug the x value into the equation to get the y-value of the vertex.
- State the vertex and AOS

1) $Y = (x-3)(x+2)$

$x = 3, -2$

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

$y = (\frac{1}{2}-3)(\frac{1}{2}+2)$

Vertex $(\frac{1}{2}, -\frac{25}{4})$ AOS $x = \frac{1}{2}$

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

$x = -4, 4$

$x = \frac{-4+4}{2} = \frac{0}{2} = 0$

$y = (0+4)(0-4) = -16$

Vertex $(0, -16)$ AOS $x = 0$

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

$x = 0, 1$

$x = \frac{0+1}{2} = \frac{1}{2}$

$y = 2(\frac{1}{2})(\frac{1}{2}-1) = -\frac{1}{2}$

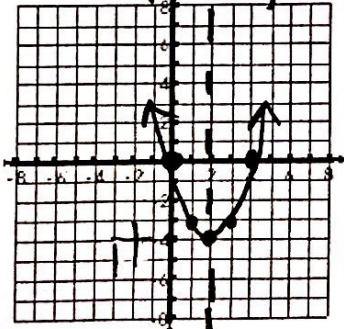
Vertex $(\frac{1}{2}, -\frac{1}{2})$ AOS $x = \frac{1}{2}$

Graph. $(0.5, -6.25)$

- Find the vertex from above
- Make a table of values (using table function in the calculator)
- Plot the points

1) $Y = x(x-4)$

V: $(2, -4)$ $x = 0, 4$



$x = \frac{0+4}{2} = \frac{4}{2} = 2$

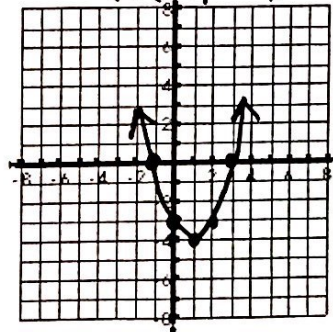
$y = 2(2-4)$

$y = -4$

x	y
0	0
1	-3
2	-4
3	-3

2) $y = (x-3)(x+1)$

V: $(1, -4)$ $x = 3, -1$



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

$y = (1-3)(1+1)$

$y = -4$

x	y
-1	0
0	-3
1	-4
2	-3
3	0