

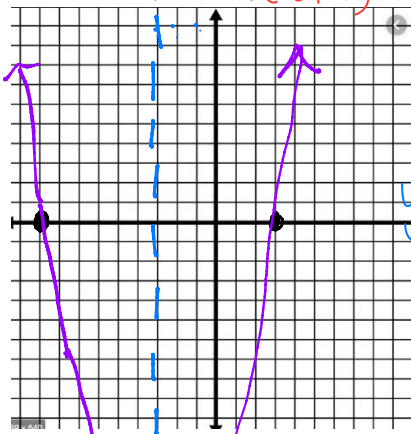
1) $y = (x - 3)(x + 9)$

What form is it in?

Intercept

Vertex:

$\frac{3+9}{2} = (-3, -36)$
 $(-3-3)(-3+9)$



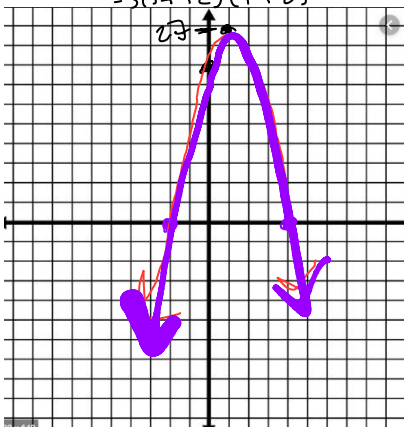
2) $y = -3(x - 4)(x + 2)$

What form is it in?

Intercept

Vertex:

$\frac{4+2}{2} = (1, 27)$
 $-3(1+2)(1+2)$



$(3,0)$ $(-9,0)$

x-intercepts:

$x-3=0$ $x+9=0$
 $+3+3$ $-9-9$
 $x=3$ $x=-9$

standard form:

	x	-3
x	x^2	$-3x$
9	$9x$	-27

$y = x^2 + 6x - 27$

Direction:

UP \rightarrow min \rightarrow
 $(-3, -36)$

y-intercept:

$(0, -27)$

$(-2,0)$ $0 = x+2$
 $(4,0)$ -2

x-intercepts:

$-3(x-4)$ $-3x = -12$
 $-3x + 12 = 0$ -12
 -12

standard form:

	$-3x$	12
x	$-3x^2$	$12x$
2	$-6x$	24

$= -3x^2 - 6x + 24$

Direction:

down, max

y-intercept:

$(0, 24)$

3) $y = \frac{1}{2}(x-3)(x+4)$

What form is it in?

Intercept

Vertex:

$(-0.5, -6.125)$
 $\frac{1}{2}(-0.5-3)(-0.5+4)$

$(3,0)$ $(-4,0)$
 x-intercepts: $x-3=0$ $x+4=0$
 $+3$ -4
 $x=3$ $x=-4$
 standard form:

Direction:

UP

y-intercept:

Max or min:

Min $(-0.5, -6.125)$

$y = 0.5x^2 + 0.5x - 6 \rightarrow (0, -6)$

Increasing:

$(-0.5, \infty)$

Decreasing:

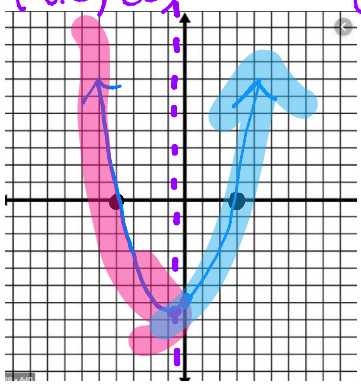
$(-\infty, -0.5)$

Domain:

$(-\infty, \infty)$

Range:

$[-6.125, \infty)$



A of symm
 $x = -0.5$

$\frac{1}{2}(x-3)(x+4)$
 $(\frac{1}{2}x - 1.5)(x+4)$

	$0.5x$	-1.5
x	$0.5x^2$	$-1.5x$
4	$2x$	-6

4) $y = -x(x+1)$

What form is it in?

Intercept

Vertex:

$(-0.5, 0.25)$
 $-(-0.5)(-0.5+1)$

$(0,0)$ $(-1,0)$
 x-intercepts: $x=0$ $x+1=0$
 -1 -1
 $x=-1$
 standard form:

Direction:

Down

y-intercept:

$(0,0)$

Max or min:

Max $(-0.5, 0.25)$

$y = -x^2 - x$

Decreasing:

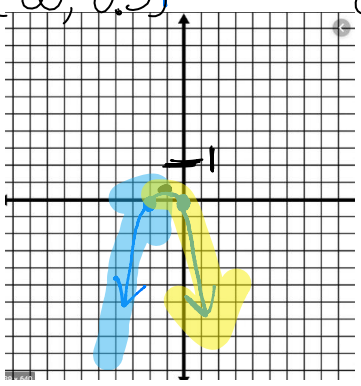
$(-0.5, \infty)$

Domain:

$(-\infty, \infty)$

Range:

$(-\infty, 0.25]$



A of symm: $x = -0.5$

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

What form is it in?

x-intercepts:

Direction:

Max or min:

Vertex:

standard form:

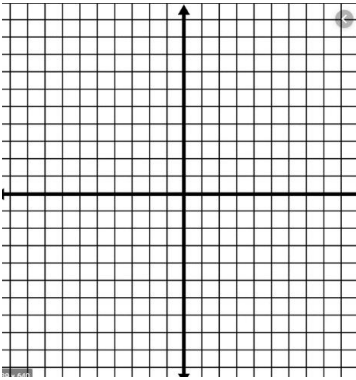
y-intercept:

Increasing:

Decreasing:

Domain:

Range:



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

What form is it in?

Intercept

Vertex:

$(0, -1)$

$(2(0)-1)(2(0)+1)$

Increasing:

$(0, \infty)$

$(0.5, 0)$

x-intercepts:

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

$\frac{2x-1}{2}$

$(-0.5, 0)$

x-intercepts:

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

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

standard form:

$4x^2 - 1$

Decreasing:

$(-\infty, 0)$

Direction:

UP

y-intercept:

$(0, -1)$

Domain:

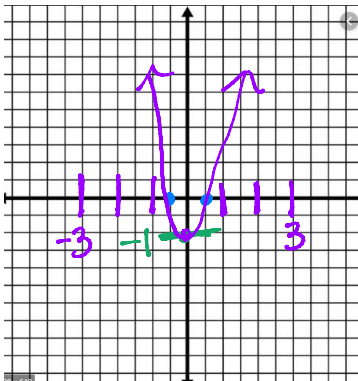
$(-\infty, \infty)$

Max or min:

Min $(0, -1)$

Range:

$[-1, \infty)$



	$2x$	-1
$2x$	$4x^2$	$-2x$
1	$2x$	-1

① $(-3, 7)$ $(-5, 17)$

$$\frac{17-7}{-5-(-3)} = -5$$

steeper
bigger #

$$\frac{y_2 - y_1}{x_2 - x_1}$$

2) $(12, -37)$ $(4, -3)$

$$\frac{-3 - (-37)}{4 - 12} = -4.25$$

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