Desmos Lab

Equations of Quadratics (Parabolas)

There are 12 equations below – but only **4** parabolas!

Each parabola has three different equations – one from each group.

Use Desmos to figure out with equations make the same parabola. On the **recording sheet**, sketch the graph of each parabola and record its three equations and key features.

Group 1	Group 2	Group 3
$y=(x-1)(x-3)$	$y=x^2-4x-5$	$y=(x+1)^2-9$
$y=(x+1)(x-5)$	$y=x^2+2x-8$	$y=(x-2)^2-1$
$y=(x+2)(x-3)$	$y=x^2-4x+3$	$y=(x-2)^2-9$
$y=(x-2)(x+4)$	$y=x^2-x-6$	$y=(x-0.5)^2-6.25$

When finished, flip over for Part 2!

Here are two new sets of equations. Can you make the graph of the parabola **without** using Desmos?

Look carefully at your recording sheet and try to figure it out!

Set 1

$y=(x+3)(x+5)$

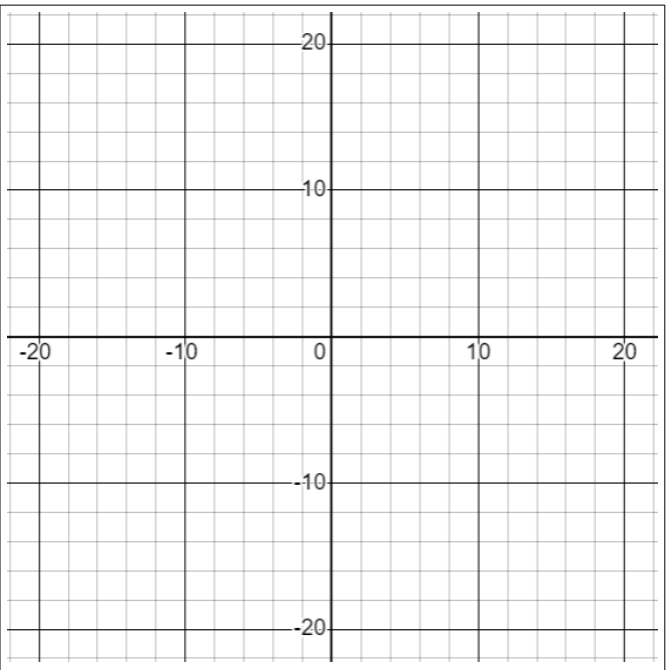
$y=x^2+8x+15$

$y=(x+4)^2-1$

Vertex:

Zeroes:

Y-intercept:



Set 2

$y=(x-3)(x-6)$

$y=x^2-9x+18$

$y=(x-4.5)^2-2.25$

Vertex:

Zeroes:

Y-intercept: