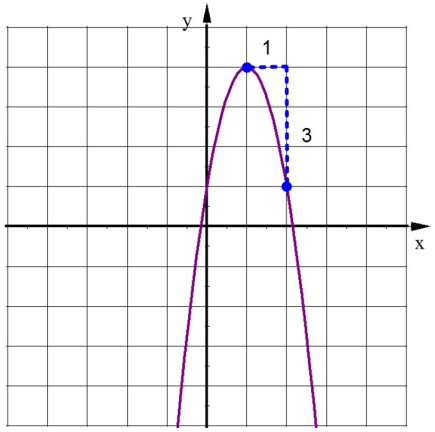
Write the equation of this parabola in Vertex Form.



The Vertex of (1,4) shows us the parabola moved 1 right and 4 up.

h = 1 k = 4

The parabola opens DOWN a is negative

From the Vertex to the first "good point" on this parabola is

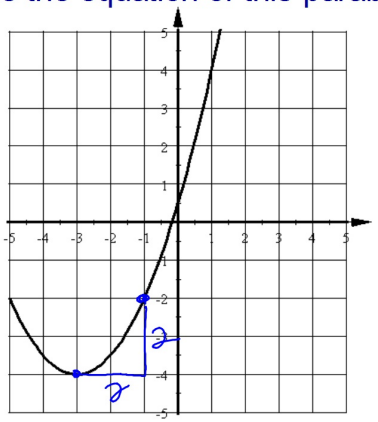
On the parent function the 1 right would become 1 up:

Therefore the Vertical Stretch/Shrink factor (a) is:

$a = \frac{\text{Vertical Distance on the Image}}{\text{Vertical Distance on the Original}} = \frac{3}{1} = 3$

EQ $y = -3(x - 1)^2 + 4$

Write the equation of this parabola in Vertex Form.



Vertex (-3, -4) Opens up

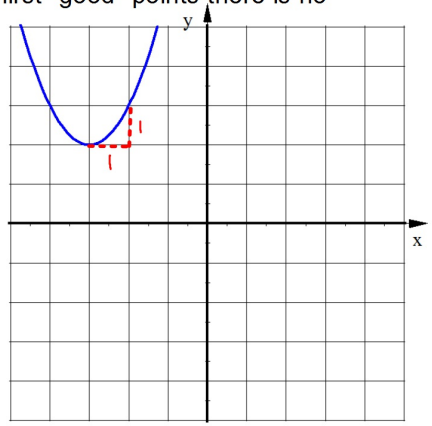
Image Original

$a = \frac{2}{4} = \frac{1}{2}$

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

Write the equation of this parabola in Standard Form.

Vertex (-3,2) Opens up Looking at the first "good" points there is no Vertical Stretch/Shrink Factor



Start with Vertex Form then expand and simplify to get Standard Form:

$y = (x+3)^2 + 2$

$x^2 + 6x + 9 + 2$

$y = x^2 + 6x + 11$

Write the equation of this parabola in Vertex Form.

Vertex (1,2), Opens Down.

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

$a = \frac{3}{9} = \frac{1}{3}$

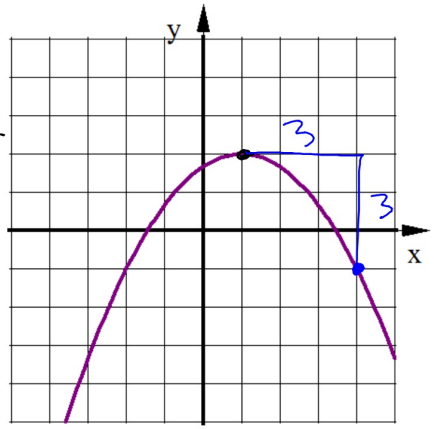
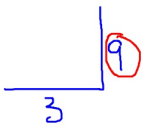


Image: Original:



Write the equation of this parabola in Vertex Form.

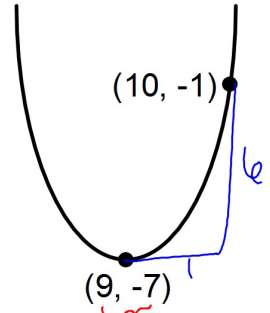


Image: 6 / 1 Original: 1 / 1

$a = \frac{6}{1}$

$y = 6(x-9)^2 - 7$

Write the equation of this parabola in Vertex Form.

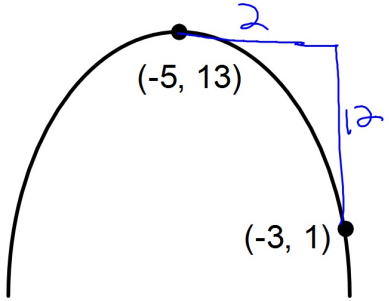


Image: 12 / 2 Original: 4 / 2

$a = \frac{12}{4}$

$y = -3(x+5)^2 + 13$

opens down

Write the equation of this parabola in Vertex Form.

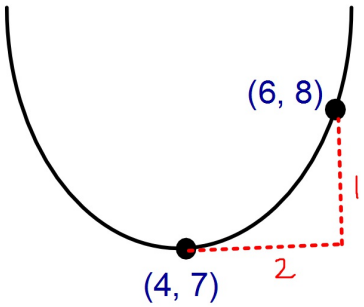


Image: 1 / 2 Original: 4 / 2

$a = \frac{1}{4}$

$y = \frac{1}{4}(x-4)^2 + 7$

Write the equation of this parabola in Vertex Form.

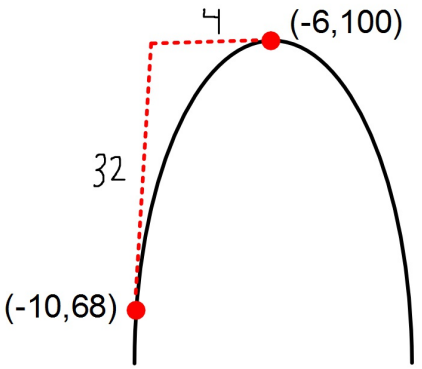


Image: 32 / 4 Original: 16 / 4

$a = \frac{32}{16} = 2$

$y = -2(x+6)^2 + 100$

Opens down

Write the equation of this parabola in Vertex Form.

Vertex is (6, 2) and the y-intercept is 146

this is the point (0,146)

sketch what this parabola could look like

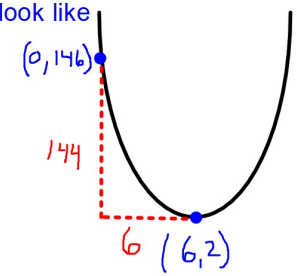


Image: 144 over 6

Original: 36 over 6

$a = \frac{144}{36} = 4$

$y = 4(x-6)^2 + 2$

Write the equation of this parabola in Vertex Form.

Vertex is (-1, 8) and the x-intercept is 4

this is the point (4,0)

sketch what this parabola could look like

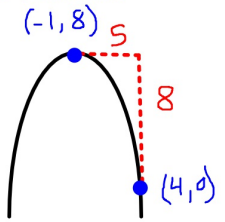


Image: 5 over 8

Original: 25 over 5

$a = \frac{8}{25}$

$y = -\frac{8}{25}(x+1)^2 + 8$

opens down

Determine the values of a and k so that both points are on the graph of the quadratic function:

given $y = a(x - 6)^2 + k$

and the points (3,33) & (1, 65)

X Y X Y

using each point, replace x and y with the coordinates creating a system of equations.

$33 = 9a + k$ using (3,33)

$65 = 25a + k$ using (1,65)

$-32 = -16a$

$2 = a$

Now that you know the value of a take one of the equations and subtitute 2 for a and solve for k:

$33 = 9(2) + K$

$33 = 18 + K$

$-18 \quad -18$

$15 = K$

$y = 2(x - 6)^2 + 15$

You can now finish Hwk # 8

Sec 5-3

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Problems: 3, 9, 10, 19, 20, 25, 47, 70

Use the sheet I've copied to do this homework

Don't be surprised by a Hwk Quiz Monday over Sections 5-2 and 5-3:

- Finding the max of a quadratic function and when it happens.
- Graphing a parabola in Vertex Form.
- Writing the equation of a parabola in Vertex Form