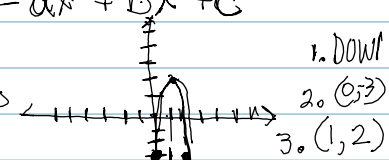


Lesson 100 - Graphs of parabolas $y = ax^2 + bx + c$

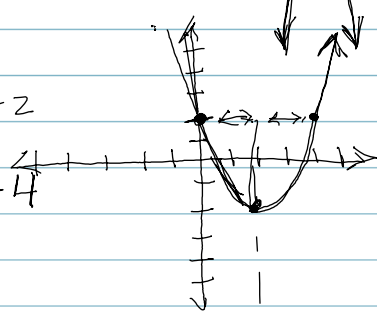
We need to find:

1. Direction (UP or DOWN) UP if $a > 0$ DOWN if $a < 0$
2. Y-intercept: $x=0$ $(0, c)$
3. Vertex: $y = (x-h)^2 + k$ (h, k)



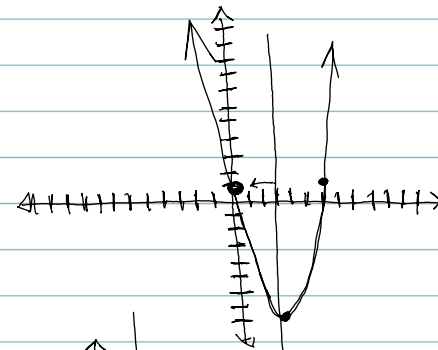
Ex. 1: $y = x^2 - 4x + 2$

1. UP $y = 0 - 4(0) + 2$
2. $(0, 2)$ $y = 2$
3. $y = (x^2 - 4x + 4) + 2 - 4$
 $y = (x - 2)^2 - 2$
 Vertex $(2, -2)$



Ex. 2: $y = x^2 - 6x + 1$

1. UP
2. $(0, 1)$
3. $y = (x^2 - 6x + 9) + 1 - 9$
 $y = (x - 3)^2 - 8$
 Vertex $(3, -8)$



Ex. 3: $y = -x^2 + 4x + 4$

1. DOWN
2. $(0, 4)$
3. $-y = x^2 - 4x - 4$
 $-y = (x^2 - 4x + 4) - 4 - 4$
 $-y = (x - 2)^2 - 8$
 $y = -(x - 2)^2 + 8$
 Vertex $(2, 8)$

