

$$ax^2 + bx + c = 0$$

$$\frac{ax^2}{a} + \frac{bx}{a} + \frac{c}{a} = -\frac{c}{a}$$

$$x^2 + \frac{b}{a}x + \frac{b^2}{4a^2} = -\frac{c}{a} + \frac{b^2}{4a^2}$$

$$\frac{b}{2a}$$

$$\sqrt{\left(x + \frac{b}{2a}\right)^2} = \sqrt{\frac{-4ac}{4a^2} + \frac{b^2}{4a^2}}$$

$$x + \frac{b}{2a} = \pm \sqrt{\frac{b^2 - 4ac}{4a^2}}$$

$$x = \frac{-b}{2a} \pm \frac{\sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

5.1 Modeling Data

standard form: $y = ax^2 + bx + c$

Vertex form: $y = a(x-h)^2 + k$

Parabola: 

vertex: (h, k)
(max or min occur)

$\Sigma x 1$

$$f(x) = 2x^2 - 8x + 8$$

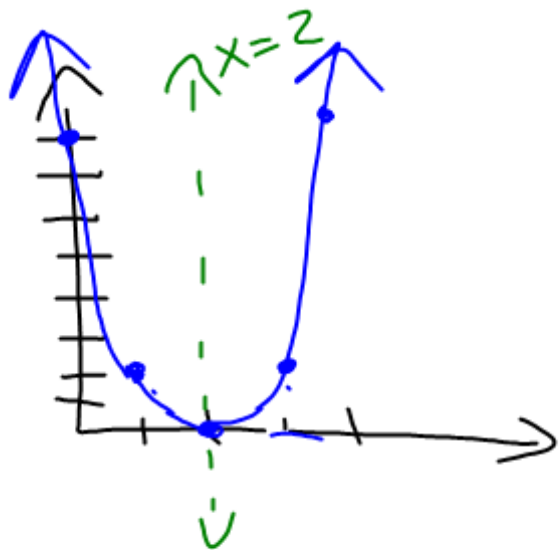
$$v: (2, 0)$$

$$x = \frac{-b}{2a} = \frac{8}{2(2)} = \frac{8}{4} = 2$$

$$y = 2(2)^2 - 8(2) + 8 = 0 \quad (K)$$

① Vertex

② y.int:
 $(0, 8)$
 $(0, 0)$



x	y
2	3
3	13
4	29

write the Quadratic Equation.

$$y = ax^2 + bx + c$$

* Find a, b, c

$$a(2)^2 + b(2) + c = 3$$

$$a(3)^2 + b(3) + c = 13$$

$$a(4)^2 + b(4) + c = 29$$

$$y = 3x^2 - 5x + 1$$

$$AX = B$$

$$X = A^{-1}B$$

$$X = \begin{bmatrix} 3 \\ -5 \\ 1 \end{bmatrix}$$

5.1

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1 - 15 odd

16 - 18, 21, 22 - 38E