V. Parabola Graph Features:

$y = ax^2 + bx + c$ is a parabola which...

opens upward ($a>0$) or downward ($a<0$)

Vertex @ $x = -b \div (2a)$

(0,c) is the y-intercept, and

has x-intercept(s) @ $(x,0)$ where $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$$b^2 - 4ac \begin{cases} > 0 \rightleftarrows 2\ x\text{-intercepts} \\ = 0 \rightleftarrows 1\ x\text{-intercept} \\ < 0 \rightleftarrows \text{no } x\text{-intercepts} \end{cases}$$

VI. Standard Form (not in text):

$y = a(x - h)^2 + k$ has Vertex @ (h,k)

VII. Examples (p.632): Problems #8,**16**,26?

HW: p.632 / Problems #3,7,9,15,17