## §7-4   Factored Form of a Quadratic

Equation $\longleftrightarrow$ graph

Equation to the graph:

① Easy to factor     $y = a(x-r)(x-s)$

            where $r$ and $s$ are the roots

                       (x-intercepts

- $x$-intercepts
- $y$-intercept ($c = a \cdot r \cdot s$)
- vertex $(x, y) \rightarrow x$ is $\frac{1}{2}$ way b/w the two x-intercepts.

② Cannot factor $\rightarrow$ use partial factoring

               (factoring $\underline{ax^2 + bx}$) $+ c$

$(x_1, c)$       - find two points by finding the zeros
$(x_2, c)$                       for $ax^2 + bx$

          - find $y$-intercept ($c$)
          - find vertex $(x, y)$ and $x$ is $\frac{1}{2}$ way b/w the two points.

Graph $\rightarrow$ equation

- $x$-intercepts (give the roots) ($r$ and $s$)
- point $(x, y)$

$$y = a(x-r)(x-s)$$

- Sub in $r, s$ and $(x, y)$ and solve for $a$.
- Write the final equation by subbing in $a, r, s$

<u>TO DO</u>
  ① CYU (p391)
  ② p391 | 4 - 13 (omit #9)
  ③ p394 | 15 + 17
Review ⟦ ④ Mid-Chapter Review (p396) - Read
     ⑤ p398 | not #12