Quadratics

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

Factored form $y = a(x-r)(x-s)$ r and s
                                                                            roots

vertex form $y = a(x-h)^2 + k$ (h, k)
                                                                        vertex

Graphing

by hand {
- table of values
- use factored form (roots, y-intercept, vertex)
- use vertex form (vertex, y-intercept, point to match)
                                                                          y-intercept
- use partial factoring
- use technology (min | max | zeros | intersections)

Solving Quadratics   if not, graph LS and RS → intersection

- graph + find zeros (must be in standard form)
   (tech)

algebraically {
- factor (set equal to zero)
   - common factor
   - difference of squares
   - perfect square
   - simple trinomial
   - decomposition ?
- use quadratic formula (standard form = 0)

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

if $b^2 - 4ac > 0$ two roots

    $b^2 - 4ac = 0$ one root

    $b^2 - 4ac < 0$ no real roots