Hints for Solving Problems Algebraically

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

y-intercept: $(0, c)$

vertex: $x = -\frac{b}{2a}$ → sub into equation to find y if needed. (max/min)

(x-coordinate of vertex / axis of symmetry)

x-intercepts (zeros/roots): set equal to zero and solve for x
① factor
② quadratic formula

solve for x or y for various other points.

factored form: $y = a(x-r)(x-s)$

y int: set $x=0$, find y

x-intercepts: r and s
(roots/zeros)

vertex: $x = \frac{r+s}{2}$ (halfway between r and s)
↳ sub into eq. to find y (max/min)

solve for x or y for other points

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

vertex: (h, k)

y-int: let $x=0$ and find y

x-intercepts: let $y=0$ and rearrange to get $(x-h)^2$ by itself
(roots/zeros)

Solve for x or y given other points.
↑
rearrange to get $(x-h)^2$ by itself.