Standard Form: $y = ax^2 + bx + c \quad (a \neq 0)$

if $a > 0$, opens up ∪ → minimum

$a < 0$, opens down ∩ → maximum

b controls the location of the vertex $\left(x = \frac{-b}{2a}\right)$

c is the y-intercept

There is an axis of symmetry where the vertex is located. Matching points on either side of axis.
(give as an equation i.e. $x = -2$)

Give the coordinates for things like the vertex, y-intercept, x-intercept(s) and intersection points.

Solving quadratics:

① Graphing (using calculator)
- Ⓐ graph function (must be set equal to zero) and find the zeros
- Ⓑ graph LHS (y_1) and the RHS (y_2) and find the intersection points

② Algebraically using factoring * must be set equal to zero
factors → set each factor equal to zero

Graphing Quadratics

① use calculator → find the min, max and zeros

② use a table of values

③ use factored form $y = a(x-r)(x-s)$
- x-intercepts (r and s)
- y-intercept (let $x = 0$, find y)
- vertex ($\frac{1}{2}$ way between r and s)

④ use partial factoring if it doesn't factor

$y = ax^2 + bx + c$

↳ set equal to zero, factor, find x

(x_1, c), (x_2, c) } 2 matching points.

↓

vertex is $\frac{1}{2}$ way in between

Getting the equation from the Graph:

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

Sub in and solve for a { - find r and s from the graph
- find 1 more point

- write final equation (sub in a, r, and s)