Factorising quadratics

If you are asked to factorise an expression, then use one of techniques below to factorise but don't use the quadratic formula and work backwards. The answer is the factorised expression, not a solution for x (or whatever variable is used).

If you are asked to factorise and hence solve, then you need to use a factorising technique and then solve.

If you are just asked to solve, and in particular if you are asked to find a solution to a certain number of decimal points, then that is the time to use the quadratic formula.

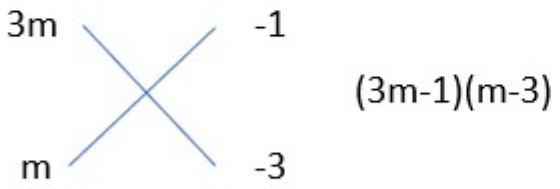
Examples of factorise questions: -

Factorise (i) $3x^2 - 48$ This is an example of $(a + b)(a-b) = a^2 - b^2$. Also note you can divide through by 3 before factorising: - $3(x+4)(x-4)$

Factorise *(ii)* $3m^2 - 10m + 3$

This is standard quadratic so just use the method you are happy with

Cross method:-



(3m-1)(m-3)

Factorise *(iii)* $12d^2 + 5d - 2$. This is standard quadratic so just use the method you are happy with

From $\mathbf{a}x^2 + \mathbf{b}x + \mathbf{c}$ find 2 numbers that multiply to give **ac** and add to give **b** and then split **bx** into 2 bits and factorise:-

$12d^2 + 5d - 2$ What 2 numbers multiply to make -24 and add to make 5 :- 8 and – 3

$12d^2 + 5d - 2 = 12d^2 + 8d - 3d - 2 = 4d(3d + 2) - (3d + 2) = (4d - 1)(3d + 2)$