

Quadratics – Q2 [Practice/M] (16/6/21)

Factorise $15x^2 + 34x + 16$

Solution

We want A and B such that $A + B = 34$ and $AB = (15)(16) = 240$

Again, the factorisation of 240 is $2^4 \times 3 \times 5$

Starting with |A| and |B| close to each other:

$$\text{eg } A = 15, B = 16 \Rightarrow A + B = 31$$

$$A = 16, B = 15 \Rightarrow A + B = 31 \text{ (ie no change)}$$

$$A = 20, B = 12 \Rightarrow A + B = 32 \text{ (ie moving in the right direction)}$$

$$A = 24, B = 10 \Rightarrow A + B = 34$$

Note: $A = 15, 12, 10$ also leads to a solution.

Then we have $(15x^2 + 24x) + (10x + 16)$

$$\text{and } 3x(5x + 8) + 2(5x + 8) = (3x + 2)(5x + 8)$$