

Type 2

$$ax^2 + bx + c$$

↑
 $a \neq 1$

Ex:

$$4x^2 + 2x - 1$$

$$-6x^2 - 3x + 8$$

⋮

How do we solve these?

Two Extra Steps

Rainbow Trull Method

Ex:

$$6x^2 + 17x + 12$$

$x^2 + 17x + 72$
 $(x+8)(x+9)$
 6 6

$(x+4)(x+3)$
 3 2

Kick

$(3x+4)(2x+3)$

Multiply term 1 and 3 together and rewrite the polynomial

Note: All terms must have no common factors for this method to work

+	x
17	72
73	1 x 72
38	2 x 36
27	3 x 24
22	4 x 18
18	6 x 12
17	8 x 9

Distributive Method

$$6x^2 + 17x + 12$$

Step 1

$$6 \times 12 = 72$$

Step 2

Look for numbers that multiply to 72 and add to 17

+	x
17	72
22	1 x 72

+	x
17	72
73	1 x 72
:	:
:	:
17	8 x a

$$\begin{aligned} & 6x^2 + 8x + 9x + 12 \\ & 2x(3x+4) + 3(3x+4) \\ & \underline{(3x+4)(2x+3)} \end{aligned}$$

Step 3
Rewrite
the polynomial

Step 4
Factor as before

Ex

$3x^2 + 8x + 4$

$x^2 + 8x + 12$

$(x + \frac{2}{3})(x + \frac{6}{3})$

$(3x + 2)(x + 2)$

+	x
8	12
13	1 x 12
8	2 x 6

$$\begin{array}{l} 3x^2 + 2x + 6x + 4 \\ x(3x+2) + 2(3x+2) \\ \hline (3x+2)(x+2) \end{array}$$

Ex: $24x^2 - 30x + 9$.

when there is a common factor
* Take it out first

$$\begin{array}{r|l} + & x \\ -10 & 24 \\ \hline -10 & -6x - 4 \end{array} \quad \checkmark$$

$$\begin{aligned} & x^2 - 10x + 24 \\ & (x - \frac{6}{8})(x - \frac{4}{8}) \\ & (x - \frac{3}{4})(x - \frac{1}{2}) \\ & \boxed{3(4x-3)(2x-1)} \end{aligned}$$

You try

$$-5t^2 + 25t + 30$$

$$-5(t^2 - 5t - 6)$$

$$-5(t+1)(t-6)$$

t	x
-5	-6
+1	-2x3
-1	2x-3
-5	1x-6

Homework: 3, 4, 5, 8a, 9, 10

Homework: 2, 6, 7, 8b, 11, 15

↑
factor

Bathrooms