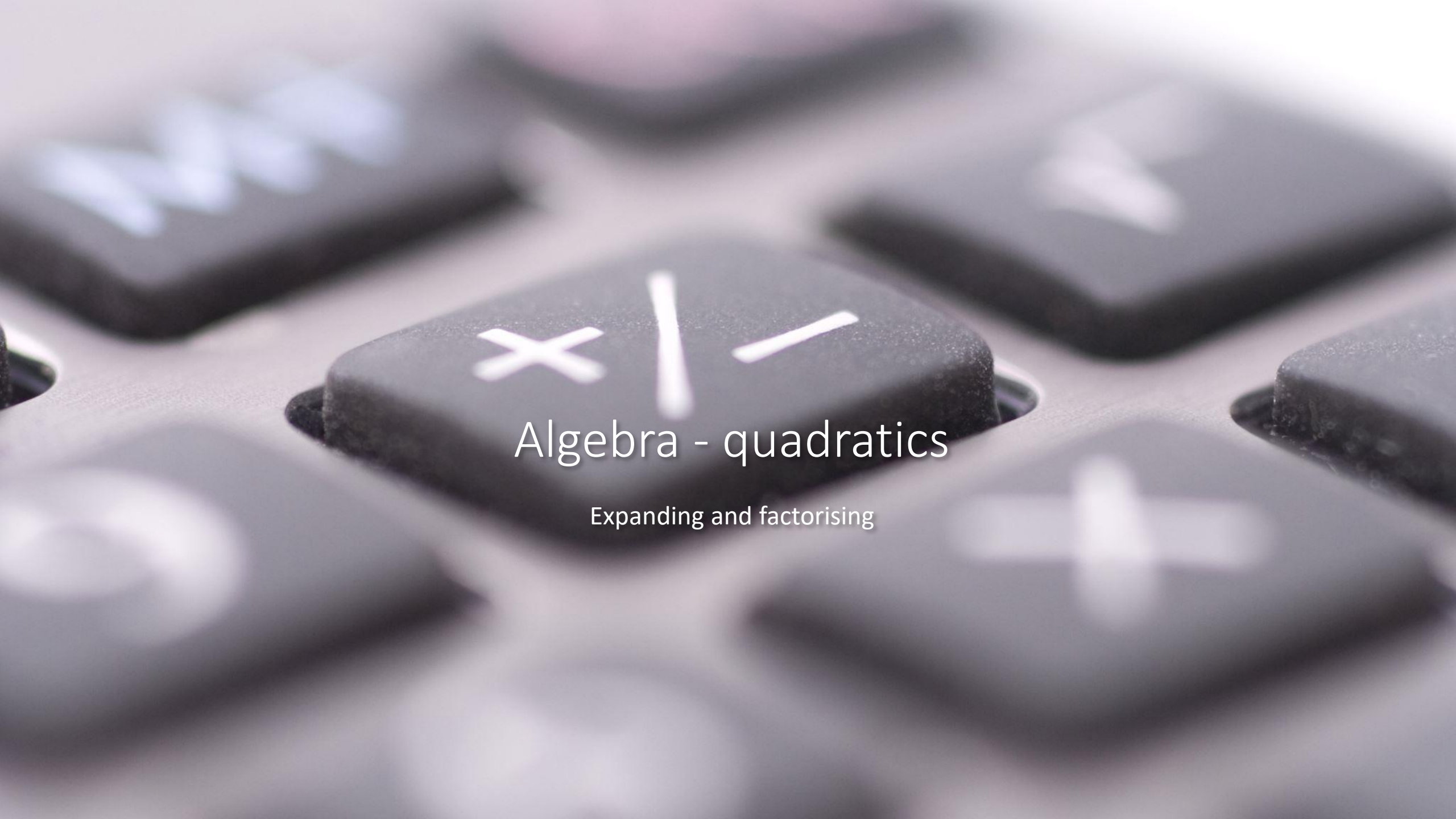


Algebra - quadratics

Expanding and factorising

Blue Zone	Green Zone	Yellow Zone	Red Zone
 Going slow	 Good to go	 Caution Starting to lose control	 Stop! Out of control
E.g. sad, sick, tired, bored	E.g. happy, calm, focused, ok	E.g. worried, excited, annoyed	E.g. angry, terrified, elated

4. Solve the simultaneous equations

$$4x + y = -1$$
$$4x - 3y = 7$$

Here is a GCSE question...

$x =$ ..... $y =$ .....

(Total 3 marks)

When Co-Efficient's are not the same…

Example 1: **Solve: 3x + 3y = 18 (1)**

5x + y = -2 (2)

SAME SIGN SUBTRACT

Step 1: When neither co-efficient's are the same we **multiply** one or both equations to make them the same…

Multiply equation (2) by x3

15x + 3y = -6 (3)

We call this equation (3)

We use the original equation 1 and new equation 3.

Step 2: Eliminate the letter with the same co-efficient *(by SUBTRACTING in this question)*

(3) 15x + 3y = -6

(1) 3x + 3y = 18 –

12x = - 24

(÷ 12)

x = -2

When Co-Efficient's are not the same…

Example 1: **Solve: 3x + 3y = 18 (1)**
5x + y = -2 (2)

Step 3: To find y, we substitute x = -2 back into one of the original equations *(equation 1)*

$$(3 \times -2) + 3y = 18$$
$$-6 + 3y = 18$$
$$(+ 6)$$
$$3y = 24$$
$$(\div 3)$$
$$y = 8$$

Step 4: Check your answers using equation 2

x = -2, y = 8

$$(5 \times -2) + 8 = -2$$
$$-10 + 8 = -2$$
$$= -2$$

When Co-Efficient's are not the same…

Eg 2: **Solve: 3x + 4y = 7 (1)**
5x - 2y = 16 (2)

DIFFERENT SIGN ADD

Step 1: When neither co-efficient's are the same we **multiply** one or both equations to make them the same…

Multiply equation (2) by x2

10x – 4y = 32 (3)

We call this equation (3)

We use the original equation 1 and new equation 3.

Step 2: Eliminate the letter with the same co-efficient *(by SUBTRACTING in this question)*

(1) 3x + 4y = 7
(3) 10x - 4y = 32 +
13x = 39

(÷ 13)

x= 3

When Co-Efficient's are not the same…

Eg2: **Solve: 3x + 4y = 7 (1)**

5x - 2y = 16 (2)

Step 3: To find y, we substitute x = 3 back into one of the ***original*** equations *(equation 1)*

$$(3 \times 3) + 4y = 7$$
$$9 + 4y = 7$$
$$(-9)$$
$$4y = -2$$
$$(\div 4)$$
$$y = -0.5$$

Step 4: Check your answers using the ***original*** (equation 2)

x = 3, y = -0.5

$(5 \times 3) - (2 \times -0.5) = 16$

$15 - -1 = 16$

$16 = 16$

When Co-Efficient's are not the same…

Eg3: **Solve: x + 4y = 6 (1)**
3x - 2y = 4 (2)

DIFFERENT SIGN ADD

Step 1: When neither co-efficient's are the same we **multiply** one or both equations to make them the same…

Multiply equation (2) by x2

6x – 4y = 8 (3)

We call this equation (3)

We use the original equation 1 and new equation 3.

Step 2: Eliminate the letter with the same co-efficient *(by ADDING in this question)*

(1) x + 4y = 6
(3) 6x - 4y = 8 +
7x = 14
(÷ 7)
x = 2

When Co-Efficient's are not the same…

Eg3: **Solve:** $x + 4y = 6$ **(1)**

$3x - 2y = 4$ **(2)**

Step 3: To find y, we substitute x = 2 back into one of the ***original*** equations *(equation 1)*

$2 + 4y = 6$

$(- 2)$

$4y = 4$

$(\div 4)$

$y = 1$

Step 4: Check your answers using the ***original*** (equation 2)

x = 2, y = 1

$(3 \times 2) - (2 \times 1) = 4$

$6 - 2 = 4$

$4 = 4$ ✓

Solve:

a) $5x + 2y = 20$

$2x + 4y = 24$

b) $3x + 2y = 26$

$4x - y = 20$

Solve:

c) $2x + 9y = 69$

$x + 3y = 24$

d) $4x + 3y = 19$

$3x - 4y = 8$

Extension – Solve:

$4x + 6y = 5$

$3x + 4y = 4$

Extension 2 – Solve:

$6x = 52 - 2y$

$5x + 7y = 70$

A1 - Solve:

a) $4x - 3y = 14$

$2x + 2y = -7$

b) $7x - 2y = 13$

$4x - 3y = 13$

A2 - Solve:

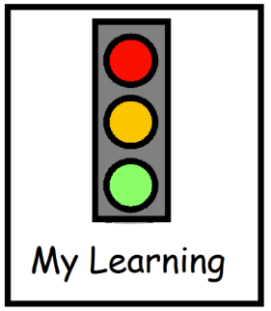
a) $2x + 9y = 69$

$x + 3y = 24$

b) $4x + 3y = 19$

$3x - 4y = 8$

Extension: Zach has 10p and 20p coins in a jar.
There are a total of 18 coins which add up to £2.30.
Work out the number of 10p and 20p coins Zach has.



Traffic light your work today.

Thumbs down- I don’t understand it

Thumbs across- I understand some of it

Thumbs up- I understand all of it

A further task will be on the website for you to complete later today – one merit for all who do ☺