OGUN DIGICLASS

CLASS: SECONDARY SCHOOL

SUBJECT: MATHEMATICS

TOPIC: SIMULTANEOUS EQUATIONS

SUBTOPIC: ELIMINATION METHOD

Simultaneous Equations

A few hints . . .

(1) Scale up each term in one, or both equations to make the same number in front of **either** the x terms **or** the y terms.

(2) **Subtract** if the signs in front of these are the **same**.

(3) **Add** if the signs in front of these are **different**.

$5x + y = 20$ … (1)

$2x + y = 11$ … (2)

$3x = 9$

$x = 3$

$2 \times 3 + y = 11$

$6 + y = 11$

$y = 5$

Number the Equations

Subtract (to get rid of a letter)

Divide (to find x)

Substitute in (2) (to find y)

$7x + y = 43$ … (1)

$3x + y = 23$ … (2)

$4x = 20$

$x = 5$

$3 \times 5 + y = 23$

$15 + y = 23$

$y = 8$

Number the Equations

Subtract (to get rid of a letter)

Divide (to find x)

Substitute in (2) (to find y)

$8x + 3y = 57$ … (1)

$6x + 3y = 51$ … (2)

$2x = 6$

$x = 3$

$6 \times 3 + 3y = 51$

$18 + 3y = 51$

$3y = 33$

$y = 11$

Number the Equations

Subtract (to get rid of a letter)

Divide (to find x)

Substitute in (2) (to find y)

$3x + y = 19$ … (1)

$x - y = 1$ … (2)

$4x = 20$

$x = 5$

$1 \times 5 - y = 1$

$5 - y = 1$

$y = 4$

Number the Equations

Add (to get rid of a letter)

Divide (to find x)

Substitute in (2) (to find y)

$7x + 2y = 32$ … (1)

$3x - 2y = 8$ … (2)

$10x = 40$

$x = 4$

$3 \times 4 - 2y = 8$

$12 - 2y = 8$

$2y = 4$

$y = 2$

Number the Equations

Add (to get rid of a letter)

Divide (to find x)

Substitute in (2) (to find y)

$$9x + 4y = 82 \quad \ldots (1)$$
$$3x - 4y = -10 \quad \ldots (2)$$

$$12x = 72$$

$$x = 6$$

$$3 \times 6 - 4y = -10$$
$$18 - 4y = -10$$
$$4y = 28$$

$$y = 7$$

Number the Equations

Add (to get rid of a letter)

Divide (to find x)

Substitute in (2) (to find y)

Simultaneous Equations

- Scaling up -

A few hints - Reminder . . .

(1) Scale up each term in one, or both equations to make the same number in front of **either** the x terms **or** the y terms.

(2) Subtract if the signs in front of these are the same.

(3) Add if the signs in front of these are different.

$2x + 3y = 13$ … (1)

$4x - y = 5$ … (2)

$2x + 3y = 13$ … (1)

$12x - 3y = 15$ … 3 x (2)

$14x = 28$

$x = 2$

$4 \times 2 - y = 5$

$8 - y = 5$

$y = 3$

Number the Equations

Scale up one of the equations

Add (to get rid of a letter)

Divide (to find x)

Substitute in (2) (to find y)

$$6x + 5y = 57 \quad \dots (1)$$

$$3x + y = 24 \quad \dots (2)$$

$$6x + 5y = 57 \quad \dots (1)$$

$$15x + 5y = 120 \quad \dots 5 \times (2)$$

$$-9x = -63$$

$$x = 7$$

$$3 \times 7 + y = 24$$

$$21 + y = 24$$

$$y = 3$$

Number the Equations

Scale up one of the equations

Subtract (to get rid of a letter)

Divide (to find x)

Substitute in (2) (to find y)

$12x - 2y = 8 \quad \ldots (1)$

$5x + y = 18 \quad \ldots (2)$

$12x - 2y = 8 \quad \ldots (1)$

$10x + 2y = 36 \quad \ldots 2 \times (2)$

$22x = 44$

$x = 2$

$5 \times 2 + y = 18$

$10 + y = 18$

$y = 8$

Number the Equations

Scale up one of the equations

Add (to get rid of a letter)

Divide (to find x)

Substitute in (2) (to find y)

$7x - 3y = 29$ … (1)

$2x + 5y = 20$ … (2)

$35x - 15y = 145$ … 5 x (1)

$6x + 15y = 60$ … 3 x (2)

$41x = 205$

$x = 5$

$2 \times 5 + 5y = 20$

$10 + 5y = 20$

$5y = 10$

$y = 2$

Number the Equations

Scale up both of the equations

Add (to get rid of a letter)

Divide (to find x)

Substitute in (2) (to find y)

$6x - 2y = 48$ … (1)

$5x - 3y = 36$ … (2)

$18x - 6y = 144$ … 3 x (1)

$10x - 6y = 72$ … 2 x (2)

$8x = 72$

$x = 9$

$5 \times 9 - 3y = 36$

$45 - 3y = 36$

$3y = 9$

$y = 3$

Number the Equations

Scale up both of the equations

Subtract (to get rid of a letter)

Divide (to find x)

Substitute in (2) (to find y)

$2x + 3y = 75$ … (1)

$7x + 4y = 191$ … (2)

$8x + 12y = 300$ … 4 x (1)

$21x + 12y = 573$ … 3 x (2)

$-13x = -273$

$x = 21$

$7 \times 21 + 4y = 191$

$147 + 4y = 191$

$4y = 44$

$y = 11$

Number the Equations

Scale up both of the equations

Subtract (to get rid of a letter)

Divide (to find x)

Substitute in (2) (to find y)