

Simultaneous Simultaneous Equations

Key Stage 1

1st and 2nd class

Find the value of each symbol and the ‘?’

Puzzle 1

$$\text{Heart} + \text{Heart} = 8$$

$$\text{Sailboat} + \text{Heart} = 7$$

$$\text{Sailboat} + \text{Airplane} = 5$$

$$\text{Airplane} + \text{Heart} = ?$$

Puzzle 2

$$\text{Pig} + \text{Pig} = 2$$

$$\text{Horse} + \text{Pig} = 4$$

$$\text{Bone} + \text{Horse} = 7$$

$$\text{Bone} + \text{Pig} = ?$$

Puzzle 3

$$\text{Classical Building} + \text{Classical Building} = 2$$

$$\text{Classical Building} + \text{Windmill} = 6$$

$$\text{Windmill} + \text{Briefcase} = 8$$

$$\text{Classical Building} + \text{Briefcase} = ?$$

Can you spot the odd one out in each puzzle?

Find the value of each symbol and the ‘?’

Puzzle 4

$$\text{Drum} + \text{Drum} = 10$$

$$\text{Drum} + \text{Fish} = 7$$

$$\text{Fish} + \text{Guitar} = 6$$

$$\text{Drum} + \text{Guitar} = ?$$

Puzzle 5

$$\text{Dress} + \text{Dress} = 4$$

$$\text{Dress} + \text{Sweater} = 3$$

$$\text{Sweater} + \text{Sweater} = ?$$

$$\text{Dress} + \text{Crab} = 5$$

Puzzle 6

$$\text{Grapes} + \text{Grapes} = 4$$

$$\text{Saxophone} + \text{Grapes} = 9$$

$$\text{Pizza} + \text{Saxophone} = 10$$

$$\text{Saxophone} - \text{Grapes} = ?$$

Can you spot the odd one out in each puzzle?

Name: _____

Simultaneous Simultaneous Equations

Key Stage 2
3rd to 6th class

Find the value of each symbol and the ‘?’

Puzzle 1

$$\begin{aligned} \text{Rabbit} + \text{Rabbit} &= 10 \\ \text{Rabbit} + \text{Butterfly} &= 8 \\ \text{Rabbit} - \text{Dog} &= 1 \\ \text{Rabbit} \times \text{Butterfly} &= ? \end{aligned}$$

Puzzle 2

$$\begin{aligned} \text{Rocket} \times \text{Rocket} &= 4 \\ \text{Rocket} + \text{Flower} &= 12 \\ \text{Flower} - \text{Tree} &= 3 \\ \text{Tree} + \text{Rocket} &= ? \end{aligned}$$

Can you spot the odd one out in each puzzle?

Name:

Find the value of each symbol and the ‘?’

Puzzle 3

$$\begin{aligned} \text{Planet} \times \text{Planet} &= 9 \\ \text{Moon} - \text{Planet} &= 20 \\ \text{Moon} - \text{Crab} &= 1 \\ \text{Moon} + \text{Crab} &= ? \end{aligned}$$

Puzzle 4

$$\begin{aligned} \text{Flask} + \text{Flask} &= 8 \\ \text{Flask} \times \text{Microscope} &= 12 \\ \text{Flask} \times \text{Flask} &= ? \\ \text{Flask} - \text{Shoe} &= \text{Microscope} \end{aligned}$$

Can you spot the odd one out in each puzzle?

NAME:

Find the value of each symbol and the ‘?’

Puzzle 5

$$\text{Candy} \times \text{Candy} = 16$$

$$\text{Candy} - \text{Ice Cream} = 3$$

$$\text{Bug} - \text{Ice Cream} = 21$$

$$\text{Candy} + \text{Candy} + \text{Bug} = ?$$

Puzzle 6

$$\text{Paddle} \times \text{Paddle} = 100$$

$$\text{Paddle} + \text{Unicorn} = 16$$

$$\text{Football} + \text{Unicorn} = 20$$

$$\text{Paddle} + \text{Paddle} - \text{Football} = ?$$

Can you spot the odd one out in each puzzle?

NAME:

Find the value of each symbol and the ‘?’

Puzzle 7

$$\text{Snake} + \text{Snake} + \text{Snake} = 36$$

$$\text{Snake} + \text{Lizard} + \text{Lizard} = 28$$

$$\text{Lizard} - \text{Star} = 6$$

$$\text{Snake} + \text{Lizard} + \text{Star} = ?$$

Puzzle 8

$$\text{Ring} \times \text{Ring} = 64$$

$$\text{Trumpet} + \text{Ring} = 27$$

$$\text{Guitar} + \text{Ring} + \text{Ring} = 20$$

$$\text{Ring} + \text{Guitar} + \text{Trumpet} = ?$$

Can you spot the odd one out in each puzzle?

Name: _____

Find the value of each symbol and the ‘?’

Puzzle 9

$$\begin{aligned}
 \text{Umbrella} &= \text{Scooter} \\
 \text{Umbrella} \times \text{Scooter} &= 121 \\
 12 \times \text{Umbrella} &= 132 \\
 \text{Duck} &= 20 - \text{Scooter} \\
 \text{Cloud} - \text{Duck} &= 7 \\
 \text{Umbrella} \times \text{Duck} &= ?
 \end{aligned}$$

Puzzle 10

$$\begin{aligned}
 \text{Bird} \times \text{Owl} &= 90 \\
 11 \times \text{Bird} &= 110 \\
 \text{Duck} &= 14 - \text{Owl} \\
 \text{Sheep} - \text{Duck} &= 7 \\
 \text{Duck} \times \text{Duck} - \text{Owl} &= ?
 \end{aligned}$$

Can you spot the odd one out in each puzzle?

NAME:

Find the value of each symbol and the ‘?’

Puzzle 11

$$\text{Apple} + \text{Apple} + \text{Apple} = 90$$

$$\text{Apple} + \text{Mug} + \text{Mug} = 50$$

$$\text{Grapes} \times \text{Apple} = 60$$

$$\text{Mug} + \text{Cherries} + \text{Grapes} = 23$$

$$\text{Grapes} \times \text{Cherries} + \text{Apple} = ?$$

Puzzle 12

$$\text{Cat Face} + \text{Cat Face} + \text{Cat Face} = 39$$

$$\text{Smiley Face} + \text{Cat Face} + \text{Smiley Face} = 25$$

$$\text{Smiley Face} + \text{Smiley Face} + \text{Beehive} \times 2 = 21$$

$$\text{Smiley Face} \times \text{Cat Face} + \text{Beehive} \times 2 + \text{Beehive} \times 2 = ?$$

Simultaneous Simultaneous Equations

Key Stage 3

Junior Cycle

NAME:

Find the value of each symbol and the ‘?’

Puzzle 1

$$\blacktriangle \div \star = 2$$

$$\blacktriangle \times \star = 50$$

$$\blacktriangle - \star = ?$$

Puzzle 2

$$\smile + \smile + \smile = 24$$

$$\smile + \heartsuit + \heartsuit = 18$$

$$\heartsuit + \heartsuit - \bullet = 6$$

$$\smile + \bullet \times \heartsuit = ?$$

$$\blacktriangle = \quad , \star = \quad , \smile = \quad , \heartsuit = \quad , \bullet = \quad$$

Insert the line(s) of symmetry to each shape in your solution set

NAME:

Find the value of each symbol and the ‘?’

Puzzle 3

$$\text{Hexagon} + \text{Diamond} + \text{Hexagon} = 17$$

$$\text{Triangle} + \text{Trapezoid} + \text{Triangle} = 12$$

$$\text{Trapezoid} = \text{Triangle}$$

$$\text{Diamond} = \text{Triangle} - 3$$

$$\text{Hexagon} \times \text{Trapezoid} - \text{Diamond} = ?$$

$$\text{Hexagon} = \text{ , } \text{Diamond} = \text{ , } \text{Triangle} = \text{ , } \text{Trapezoid} = \text{ .}$$

Puzzle 4

$$\text{Three Shamrocks} + \text{Cactus} = 14$$

$$\text{Two Shamrocks} - \text{Cactus} = 6$$

$$\text{Shamrock} = ? \quad \text{Cactus} = ?$$

Solve these simultaneous equations to find the value of each symbol

Puzzle 5

$$\begin{array}{c} \text{3 umbrellas} \\ + \text{1 duck} \\ = 16 \end{array}$$

$$\begin{array}{c} \text{2 umbrellas} \\ + \text{1 duck} \\ = 10 \end{array}$$

$$\begin{array}{c} \text{1 umbrella} \\ = ? \end{array} \quad \begin{array}{c} \text{1 duck} \\ = ? \end{array}$$

Puzzle 6

$$\begin{array}{c} \text{2 planets} \\ + \text{3 rockets} \\ = 13 \end{array}$$

$$\begin{array}{c} \text{4 planets} \\ - \text{1 rocket} \\ = 5 \end{array}$$

$$\begin{array}{c} \text{1 planet} \\ = ? \end{array} \quad \begin{array}{c} \text{1 rocket} \\ = ? \end{array}$$

Find the value of each symbol and the ‘?’

Puzzle 7

$$\begin{aligned} \text{Crescent} + \text{Heart} + \text{Crescent} + \text{Heart} + \text{Heart} &= 68 \\ \text{Heart} + \text{Crescent} + \text{Star} + \text{Star} &= 14 \\ \text{Heart} + \text{Crescent} + \text{Crescent} &= 28 \end{aligned}$$

Puzzle 8

$$\begin{aligned} \text{Target} - \text{Spiderweb} &= -5 \\ \text{Target}^3 &= 64 \\ \sqrt{(\text{Spiderweb} + \text{Target}^2)} - 1 &= ? \end{aligned}$$

Find the value of each symbol and the ‘?’

Puzzle 9

$$-1 = \text{Game Controller} - \text{Piggy Bank}$$

$$\text{Piggy Bank} + \text{Game Controller} = 17$$

$$\text{Game Controller} = ? \quad \text{Piggy Bank} = ?$$

Puzzle 10

$$\text{Ladybug} \times \text{Caterpillar} = 30$$

$$\text{Ladybug}^2 = 36$$

$$\text{Caterpillar}^2 \times \text{Ladybug} + \text{Butterfly}^2 = 166$$

$$\text{Ladybug} + \text{Caterpillar} \times \text{Butterfly} = ?$$

Find the value of each symbol and the ‘?’

Puzzle 11

$$\text{cat} \div \text{dog} = 4$$

$$\text{dog}^3 = 27$$

$$\text{cat} \times \text{dog} \times \text{rabbit} = 72$$

$$14 - \text{dog} \times \text{rabbit} = ?$$

Puzzle 12

$$\text{paper plane} - 3 = 5 - \text{envelope}$$

$$\text{envelope} + 6 = \text{paper plane}$$

$$\text{envelope} = ?$$

$$\text{paper plane} = ?$$

Simultaneous Simultaneous Equations

Key Stage 4

TY and LCA

NAME:

Find the value of each symbol and the ‘?’

Puzzle 1

$$26 \times \text{pencil} = 208$$

$$\text{scissors} + \text{bag} = 30$$

$$26 - \text{scissors} = 4$$

$$\text{pencil} \times \text{bag} = 64$$

$$\text{scissors} + \text{bag} \times \text{pencil} = ?$$

Puzzle 2

$$14 \times \text{stars} = 84$$

$$\text{medals} + \text{wreath} = 31$$

$$\text{wreath} - \text{stars} = 4$$

$$\text{medals} \div \text{stars} = 8$$

$$\text{medals} + 3(\text{wreath}) \div \text{stars} = ?$$

Find the value of each symbol and the ‘?’

Puzzle 3

$$\begin{aligned} \text{Dinosaur} + 10 \text{ Paw Prints} &= 1 \\ \text{Dinosaur} - 3 \text{ Paw Prints} &= -12 \\ \text{Dinosaur} &= ? \quad \text{Paw Print} = ? \end{aligned}$$

Puzzle 4

$$\begin{aligned} \text{Bird} \times 5 &= 35 \\ \text{Bird} + \text{Cat} &= 12 \\ 5 + \text{Fish} &= 21 \\ \text{Cat} \times \text{Fish} &= 80 \\ \text{Bird} \times \text{Cat} \times \text{Fish} &= ? \end{aligned}$$

Find the value of each symbol and the ‘?’

Puzzle 5

$$\text{Watch} + \text{Cap} = 12$$

$$3 \times \text{Watch} - 2 \times \text{Cap} = 11$$

$$\text{Watch} = ? \quad \text{Cap} = ?$$

Puzzle 6

$$\text{Unicorn} - \text{Bee} = 2$$

$$\text{Bee} + \text{Unicorn} = 8$$

$$\text{Unicorn} = ? \quad \text{Bee} = ?$$

Simultaneous Simultaneous Equations

Sixth form
Leaving Cert

NB: all solutions $\in \mathbb{Z}$

Find the value of each symbol and the ‘?’

Puzzle 1

$$\text{Clover} + \text{Clover} + 6 = 32$$

$$\text{Clover} + \text{Clover} + \text{Rabbit} = 48$$

$$\text{Rabbit} + \text{Rabbit} \times \text{Lock} = 220$$

$$6 \times \text{Lock} = 60$$

$$\text{Clover} + \text{Clover} \times \text{Lock} + \text{Lock} + \text{Rabbit} = ?$$

Puzzle 2

$$\text{Snowman} + \text{Snowman} + \text{Sunglasses} = 30$$

$$\text{Snowman} + \text{Snowman} \times 14 = 224$$

$$14 \times \text{Snowflake} = 280$$

$$\text{Sunglasses} + \text{Snowflake} + \text{Snowflake} = 34$$

$$\text{Snowflake} + \text{Snowflake} + \text{Sunglasses} \times \text{Snowman} = ?$$

Find the value of each symbol and the ‘?’

Puzzle 3

$$\text{2 giraffes} \times \text{2 birds} = 840$$

$$\text{2 giraffes} \times \text{2 monkeys} = 672$$

$$\text{2 birds} + \text{2 crabs} = 48$$

$$\text{2 monkeys} + \text{2 crabs} = 42$$

$$\text{1 monkey} \times \text{2 giraffes} + \text{1 bird} = ?$$

Puzzle 4

$$\text{1 square} + \text{1 triangle} + \text{1 circle} = 10$$

$$\text{2 squares} + \text{1 triangle} + \text{3 circles} = 18$$

$$\text{3 squares} - \text{2 triangles} + \text{1 circle} = -1$$

$$\text{square} = ? \quad \text{triangle} = ? \quad \text{circle} = ?$$

NB: all solutions $\in \mathbb{Z}$

Find the values of each symbol and the '?'

Note: there are two values for the '?' in Puzzle 6

Puzzle 5

$$\text{Saxophone} + \text{Guitar} = 6$$

$$\text{Saxophone}^2 + \text{Guitar}^2 = 8$$

$$\text{Saxophone} = ? \quad \text{Guitar} = ?$$

Puzzle 6

$$\text{Tulip} + \text{Grasshopper} = 2$$

$$\text{Tulip}^2 + \text{Grasshopper}^2 = 13$$

$$\text{Tulip} + \text{Tulip} \times \text{Grasshopper} = ?$$