

Mathematics

# Simultaneous equations - trial and error

Mr Coward



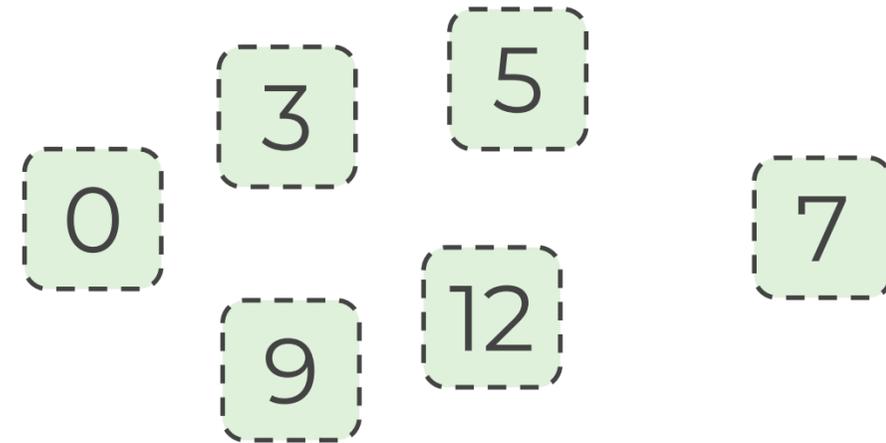
## Try this

①  $2x + 3y = 24$

When  $x = \square$   $y = \underline{\quad}$

②  $5x + 3y = 42$

When  $x = \square$   $y = \underline{\quad}$



Substitute each of these  $x$  values into each of these equations to find  $y$ .

Find each  $x$  value state whether ① or ② have the greater  $y$  value.

What do you notice? What other  $x$  values could you try?



# Independent task

1) Use the table of values to find which two integers  $x$  lies in between.

Write your answer as an inequality.

a)

$2x + y = 18$	$x$	0	1	2	3	4	5
	$y$						
$6x + y = 32$	$x$	0	1	2	3	4	5
	$y$						

b)

$3x + 4y = 1$	$x$	-4	-3	-2	-1	0	1
	$y$						
$6x + 10y = 5$	$x$	-4	-3	-2	-1	0	1
	$y$						

c) Solve the simultaneous equations from (a) and (b) to check your solutions.



# Independent task

2) Use the table of values to find the value of  $x$  to one decimal place.

$3x + 4y = 21.59$	$x$	1.6	1.65	1.7	1.75	1.8	1.85
	$y$						
$2x + 5y = 23.96$	$x$	1.6	1.65	1.7	1.75	1.8	1.85
	$y$						



# Explore

Substitute  $x = 2$  and  $x = 7$  to find the  $y$  values for each pair of simultaneous equations.

$$\begin{aligned}5x + 2y &= 13 \\7x - y &= 3\end{aligned}$$

$$\begin{aligned}7x + 6y &= 2 \\2x + 5y &= -29\end{aligned}$$

$$\begin{aligned}2x - 8y &= -22 \\3x + 7y &= 43\end{aligned}$$

Decide which inequality statement each satisfy.

The lines meet when  $2 < x < 7$

The lines meet when  $x < 2$

The lines meet when  $x > 7$

Can you describe what happens to the  $y$  value for each inequality.

