



W.C. 8th June

Maths Answers

Monday

Fluent in 5

Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

1. $3.43 \times 100 = 343$ (M)
2. $1.32 \times 3 = 3.96$ (M)
3. $\frac{3}{7}$ of 28 = 12 (M)
4. $43 \times 21 = 903$ (W)
5. $1,664 + 2,349 = 4,013$ (W)



Finding a rule with one and two steps

Mild

Find a rule - one step

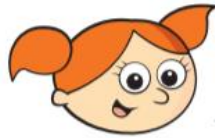
- 1 Whitney makes a pattern of triangles using sticks.

Complete the table below.



Number of triangles	1	2	3	4	5	10	30
Number of sticks	3	6	9	12	15	30	90

2 Complete the tables.



To find the number of wheels, you multiply the number of bicycles by 2

a)

Number of bicycles	1	2	5	9	12	16
Number of wheels	2	4	10	18	24	32

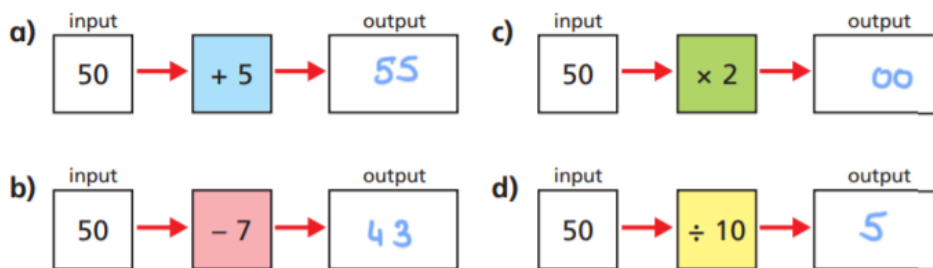
b)

Number of ants	1	2	5	3	4	16
Number of legs	6	12	30	18	24	96

Explain how to find the number of legs.

Multiply the number of ants by 6

3 Calculate the outputs for the function machines below.



Find a rule - two step

1 Use the function machine to complete the table.



Input	1	2	3	5	10	50
Output	7	12	17	27	52	252

2) Use the function machine to complete the table.

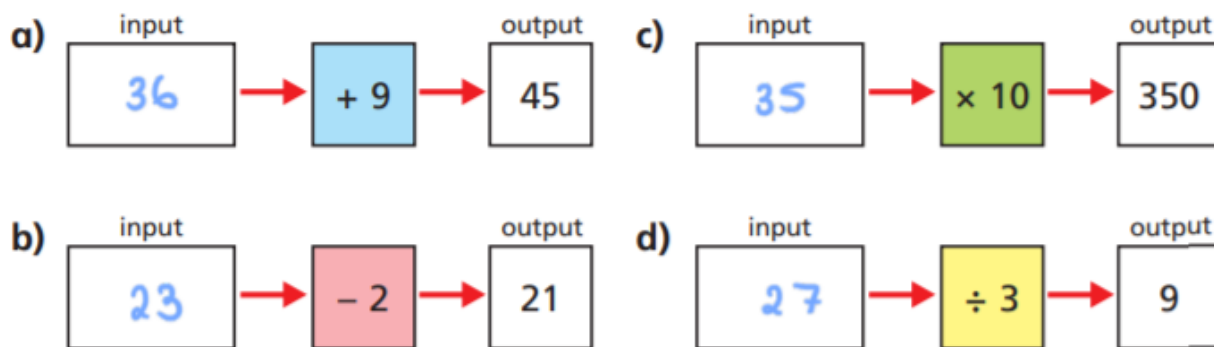
Input	1	2	3	5	10	50
Output	15	20	25	35	60	260

Who is correct? Jack

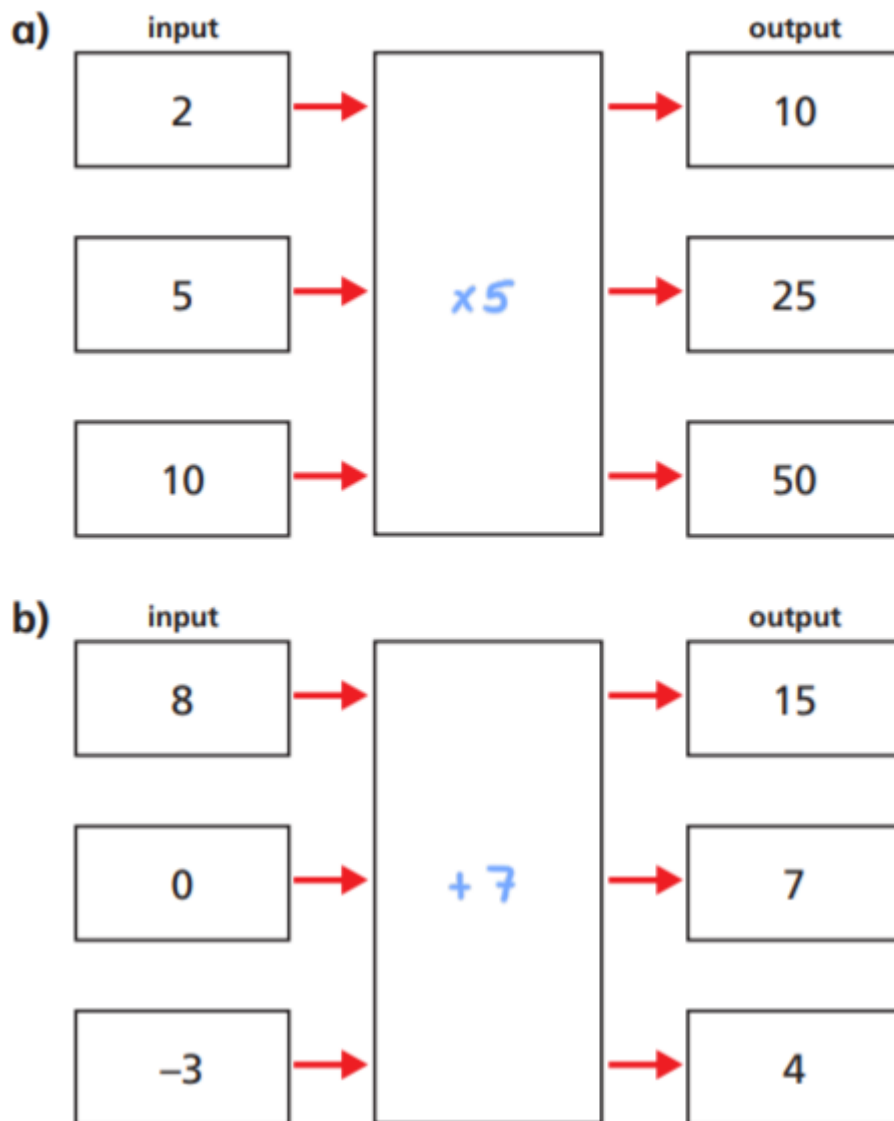
Medium

Find a rule - one step

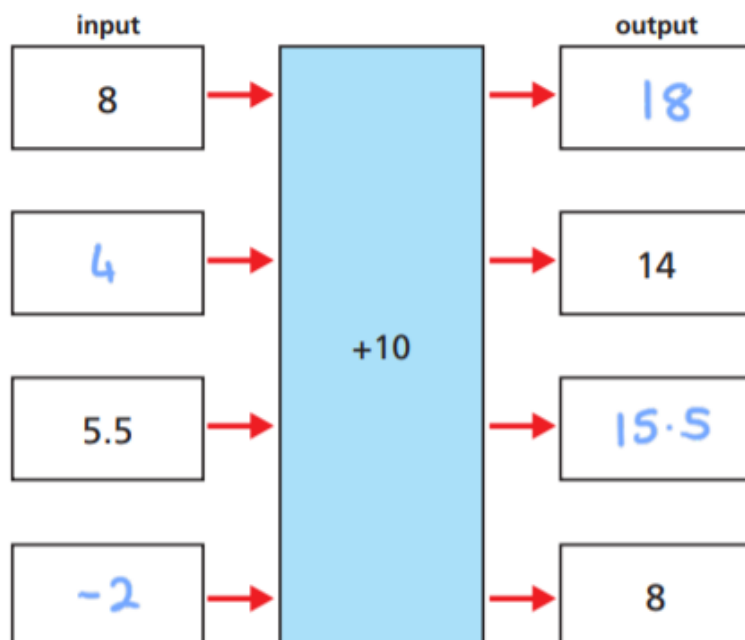
Calculate the inputs for the function machines.



Write the missing functions in the function machines.

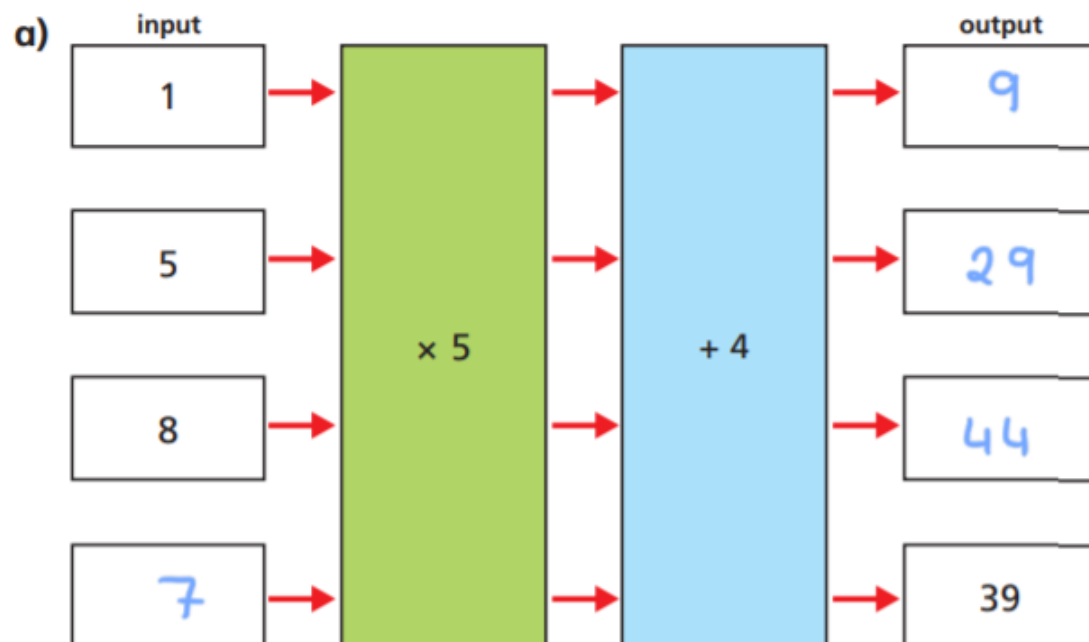


Calculate the missing inputs and outputs for the function machine.

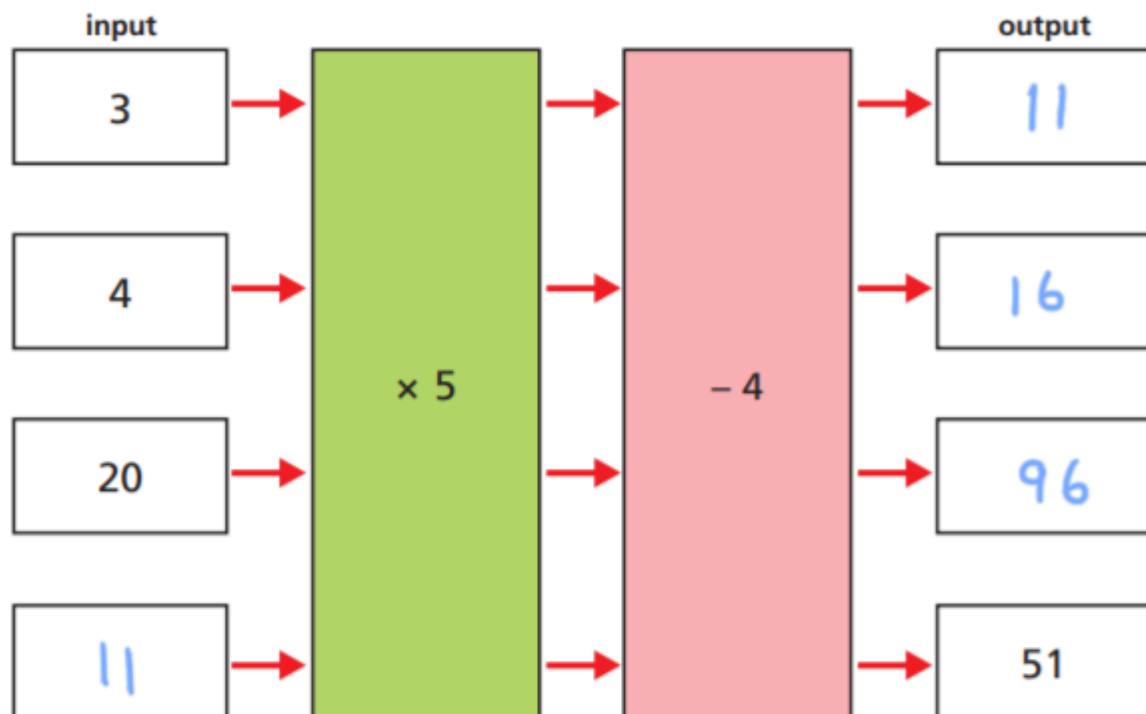


Find a rule - two step

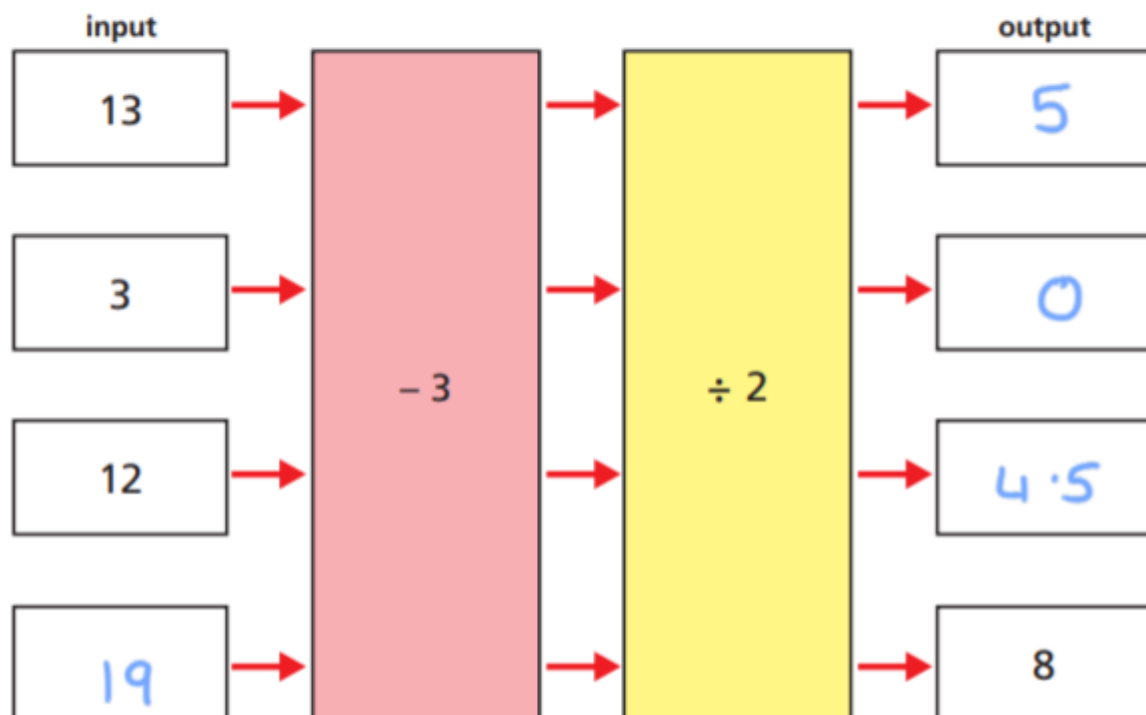
Work out the missing outputs and inputs.



b)



c)



Spicy

Find a rule - one step

a) What is the output, if the input is zero?

50

b) What is the input, if the output is zero?

- 50

Here is a function machine.



Dora

The rule is add 9

The rule is
multiply by 2.5



Dexter

Who do you agree with? Both

Explain your answer.

Write two different functions and complete the table of outputs for each function.



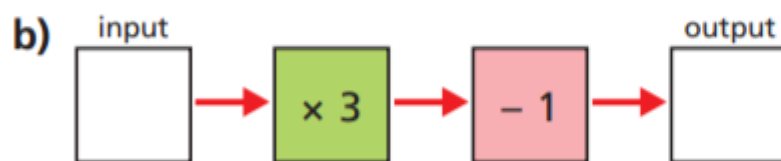
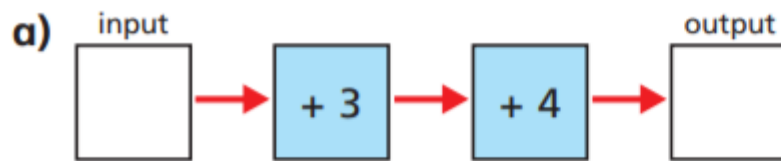
Input	3	4	5	10	20	100
Output	12	16	20	40	80	400



Input	3	4	5	10	20	100
Output	12	13	14	19	29	109

Find a rule - two step

Tick the pairs of function machines that will give the same outputs for a given input.



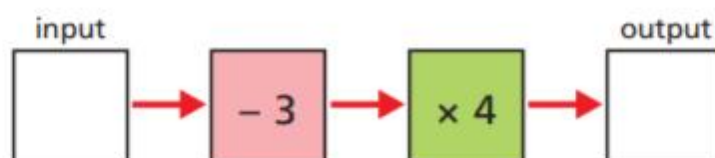
Here are some 2-step function machines.

For each machine, write a single step that would give the same output.

Check your answers by inputting values.



Here is a function machine.



a) Complete the table.

Input	10	3	13	73
Output	28	0	40	280

b) Rosie puts a number into the machine and she gets out the same number.

Work out Rosie's number.

4

Tuesday

Fluent in 5

Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

1. $3,763 \div 3 = 1,254 \text{ r } 1$ or $1,254.33$ or $1,254\frac{1}{3}$ (W)

2. $6.33 \times 2 = 12.66$ (M)

3. $\frac{1}{3} + \frac{3}{3} = \frac{4}{3}$ or $1\frac{1}{3}$ (M)

4. $\frac{11}{12} \times 144 = 132$ (M)

5. $8,953 - 695 = 8,258$ (W)

Forming expressions and understanding algebraic

Mild

1)



$2x + 3$



$3x + 5$



$3x$



$x + 3$



$2x + 5$



$5x + 2$



$2x + 6$



$4x + 9$

2) 6, 11, 3

Medium

Use cubes to help you simplify the following expressions.

The first one has been done for you.

a) $2y + 5 + y$



$3y + 5$

b) $3a + 2 + a + a$



$5a + 2$

c) $6p + 2 - 2p$

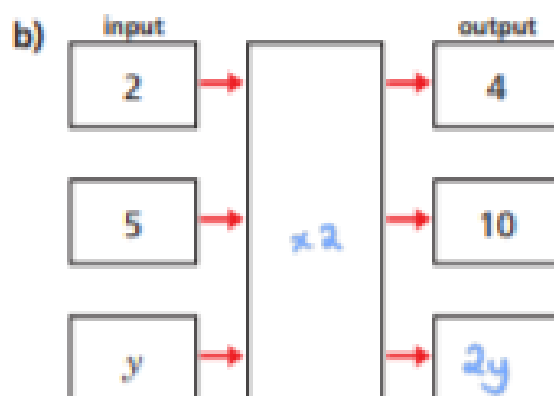
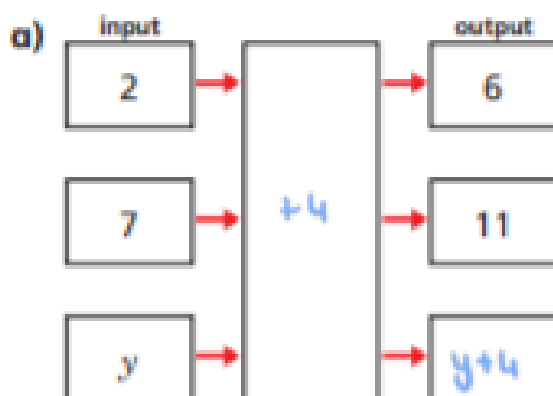


$4p + 2$

d) $m + 4 + 3m - 3$

$4m + 1$

Complete the function machines.



$$\div 2$$

Other pairs of functions that will do the same are functions that are the inverse of each other e.g. $+ 3, - 3$

No. Children can show this to be untrue using any number for both rules.

Various possible answers, for example:

$$\times 7 \div 2 = 21$$

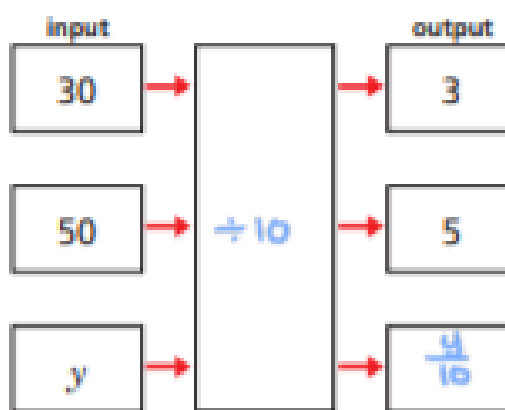
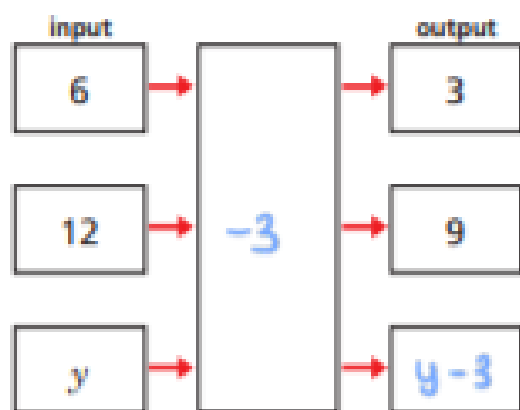
$$\div 2 + 4 = 7$$

$$\div 2 \times 7 = 21$$

$$+ 2 \times 7 = 56$$

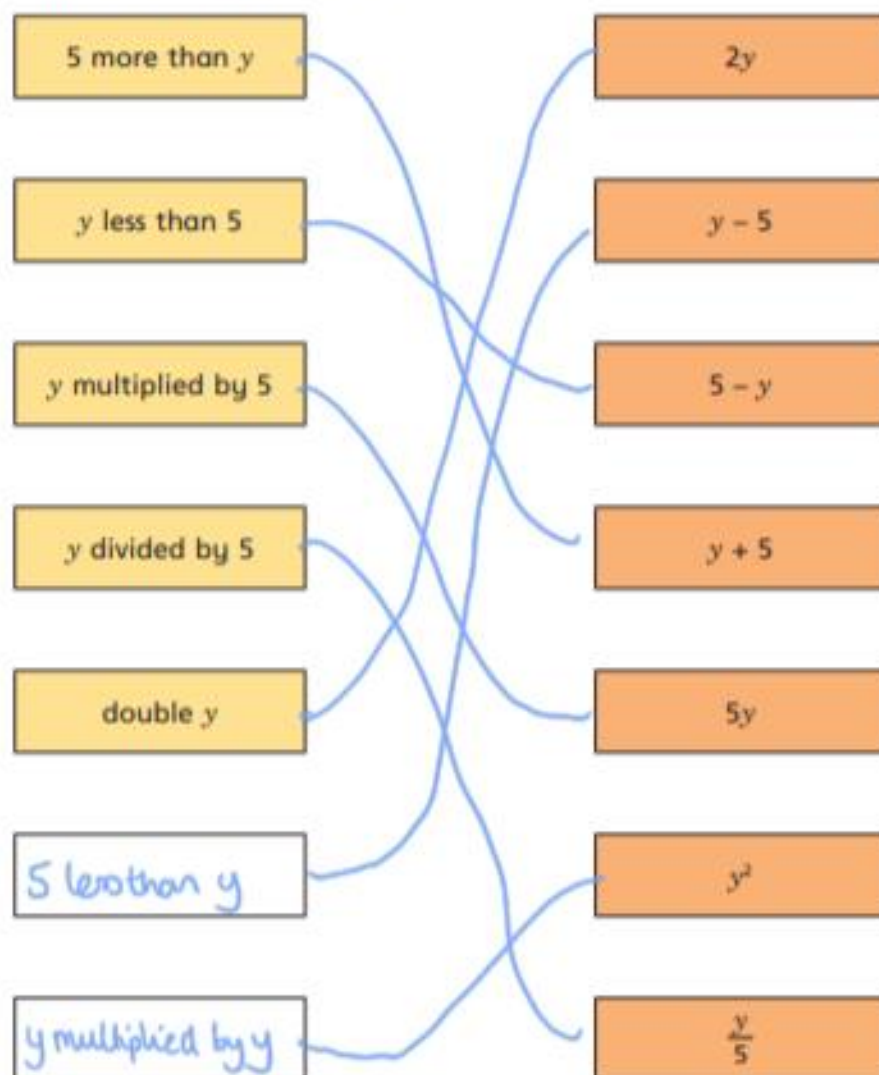
$$\text{Greatest output} = 70 + 4 \times 7$$

Spicy

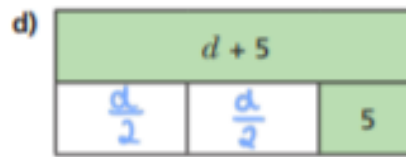
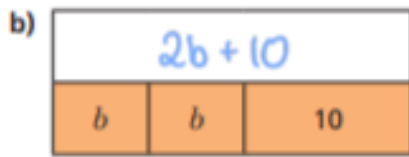
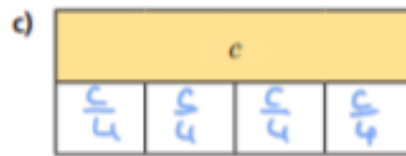
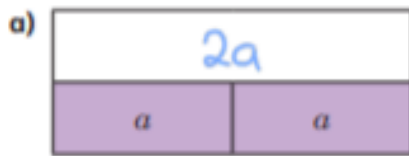


Match each statement to the equivalent algebraic expression.

Write the missing statements.



Complete the bar models.



Various possible answers, for example:

$$\times 10 + 9 = 109$$

$$- 10 + 1 = 1$$

$$+ 10 \times 1 = 20$$

$$+ 1 \times 9 = 99$$

$$\text{Greatest output} = 190 + 9 \times 10$$

True. $+ 4, - 9$ is the same as $+5$. Children can show different examples of inputs to prove their statement.

True. $+ 10, - 5$ is the same as $+ 5$. Children can show different examples of inputs to prove their statement.

Wednesday

Fluent in 5

Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

1. $300 + 700 = 1,000$ (M)
2. $431 \times 7 = 3,017$ (W)
3. $\frac{6}{7} \times 140 = 120$ (M)
4. $\frac{5}{6} + \frac{3}{6} = \frac{8}{6}$ or $1\frac{2}{6}$ (M)
5. $9,034 + 4,405 = 13,439$ (W)

Substitute into simple expressions and formulae

Mild

1



= 4



= 5

Use the given facts to work out the calculations.

a)  +  + 

13

b)  +  - 

3

c)  +  +  +  + 

23

2

$\triangle = 12$

$\square = 5$

Use the given facts to work out the calculations.

a) $\triangle - \square$

7

b) $\triangle \times \square$

60

c) Create your own calculation that will be equal to 22

e.g. $\triangle + \square + \square$

a) A. 20; B. 8; C. 4

b) A. 20; B. 50; C. 30

a) False. The answer is 25.

b) True

Medium

If $x = 5$, write the values of the expressions in the corresponding grid.

The first one has been done for you.

$3x$	x^2	$2x - 5$
$4x + 2$	$\frac{x}{2}$	$2(x + 1)$
$7x$	$x + 9$	$x - 7$

15	25	5
22	2.5	12
35	14	-2

If $a = 10$ and $b = 6$, work out the values of the expressions.

a) $a + b =$ 16

d) $2a + b =$ 26

b) $a - b =$ 4

e) $3a - 17 =$ 13

c) $2a =$ 20

f) $2(a - b) =$ 8

True

Jacob

No; $a = 15 - 4 = 11$, so $c = 11 + 10 = 21$

Spicy



Mo

It does not matter what p and q are, $p + q$ and $q + p$ will always give the same answer.

Do you agree with Mo? Yes

Explain your answer.

Addition is commutative

Eg. $3+4=7$ and $4+3=7$

$$m = 7 \quad n = 5$$

Write $>$, $<$ or $=$ to compare the expressions.

a) $2m$ $>$ 10

b) $n - 1$ $<$ 5

c) $2n + m$ $<$ $2m + n$

d) $7n$ $=$ $5m$

$$a = 15$$

Write three different algebraic expressions that give a value of 40

e.g.

$$2a + 10$$

$$3a - 5$$

$$\frac{8a}{3}$$

Complete the table.

x	$5x$	$5x - 1$
2	10	9
10	50	49
12	60	59
5	25	24
7	35	34
20	100	99

False. The answer is -3.7.

3cm

Thursday

Fluent in 5

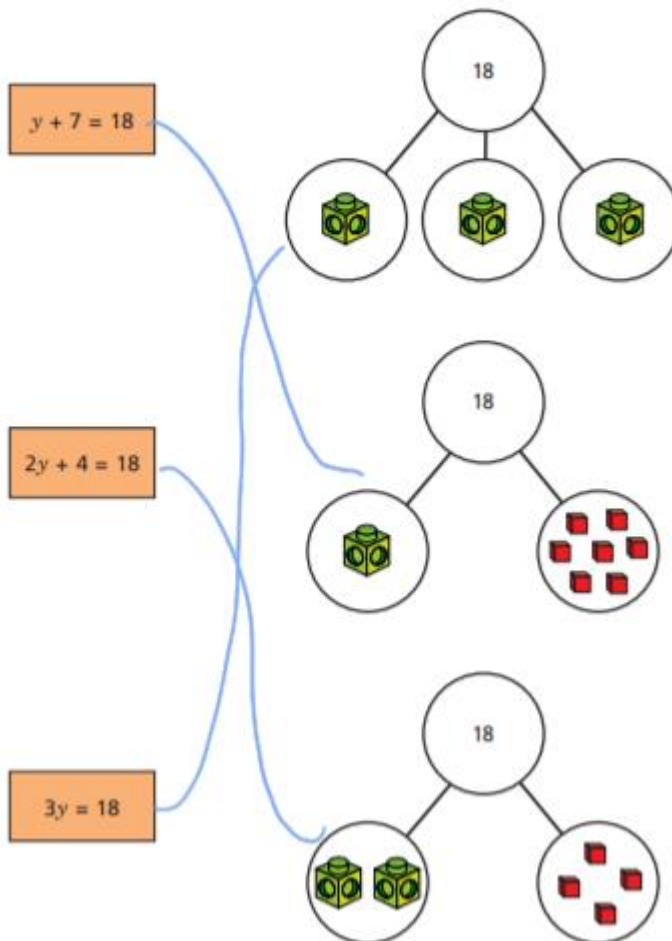
Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

1. $700 + 1,300 = 2,000$ (M)
2. $5 + 6 + 3 = 14$ (M)
3. $1.30 \times 6 = 7.8$ (M)
4. $9,321 \times 6 = 55,926$ (W)
5. $3,433 \div 11 = 312 \text{ r } 1$ or $312 \frac{1}{11}$ (W)

Forming and solving one step equations

Mild

- 1 Match each equation to the part-whole model it represents.

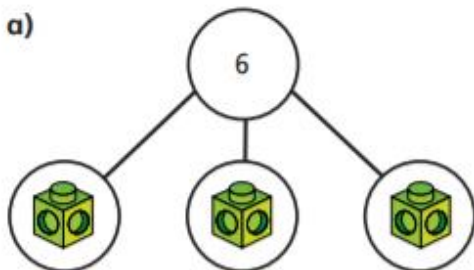


Solving one step equations

- 1 Write an equation for each part-whole model.

Work out the value of the multilink cube in each equation.

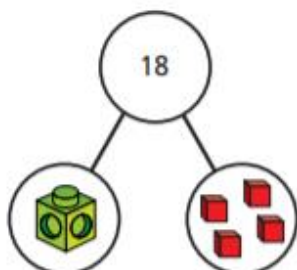
a)



$$3x = 6$$

 = 2

b)



$$x + 4 = 18$$

 = 14

- 2 There are some counters under the cup.



There are 10 counters in total.

- a) If c is the number of counters under the cup, explain why

$$c + 6 = 10$$

- b) Work out the value of c .

$$c =$$
4

- c) How many counters are under the cup?

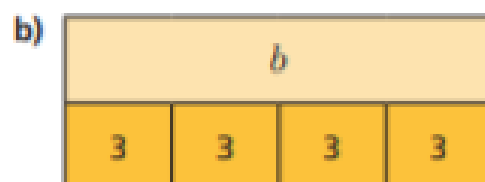
4

Medium

Write equations to represent the bar models.



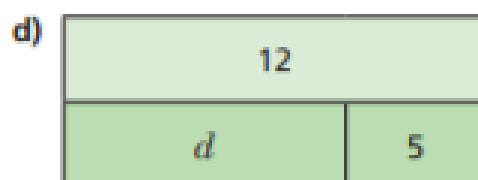
$$2a = 14$$



$$\frac{b}{4} = 3$$



$$2c + 10 = 16$$



$$d + 5 = 12$$

Draw a bar model to represent each equation.

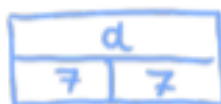
a) $3a = 21$

c) $6 + 9 = c$



b) $2b + 6 = 10$

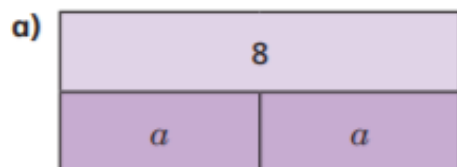
d) $\frac{d}{2} = 7$



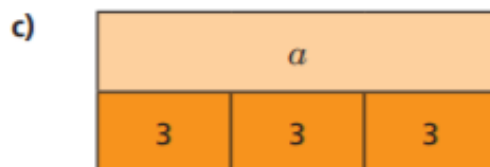
Solving one step equations

Write algebraic equations to represent the bar models.

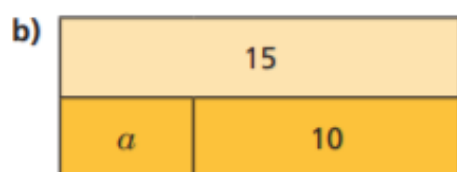
Find the value of a in each one.



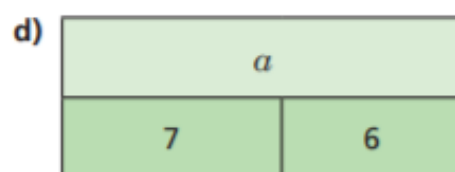
$$a = \boxed{4}$$



$$a = \boxed{9}$$



$$a = \boxed{5}$$



$$a = \boxed{13}$$

Nijah is solving the equation $x - 8 = 20$

$$\begin{aligned}x - 8 &= 20 \\x &= 20 - 8 \\x &= 12\end{aligned}$$

What mistake has Nijah made?

She should have added 8 to 20

$x = 28$

Spicy



I subtract 3 from
my number. I get the
answer 10

$$x - 3 = 10$$



I have doubled
my number and added 5
My answer is 19

$$2x + 5 = 19$$

Write an expression for each step of Annie's trick.

$$x$$

$$2x$$

$$2x + 10$$

$$x + 5$$

$$5$$

Solving one step equations

Solve the equations.

a) $x + 7 = 20$

$$x = \boxed{13}$$

d) $g - 3 = 15$

$$g = \boxed{18}$$

b) $10y = 80$

$$y = \boxed{8}$$

e) $32 = t - 5$

$$t = \boxed{37}$$

c) $4m = 22$

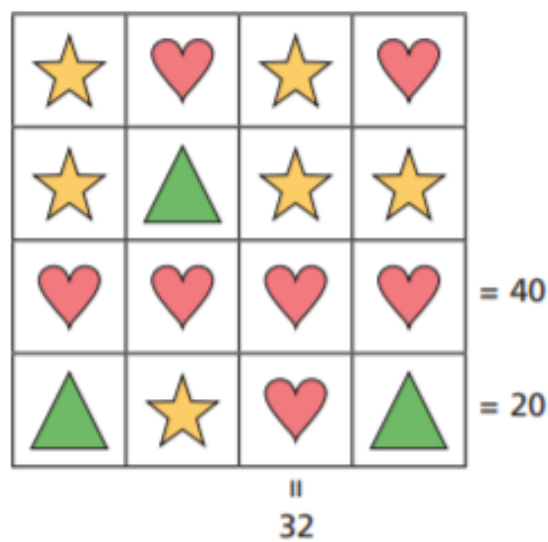
$$m = \boxed{5.5}$$

f) $\frac{u}{6} = 3$

$$u = \boxed{18}$$

Work out the value of each shape.

Write the equations that you solved to find the value of each shape.



 = 10

 = 6

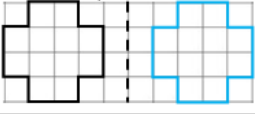
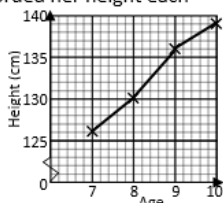
 = 2

Friday

Maths in football

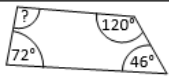
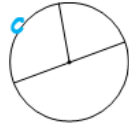
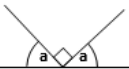
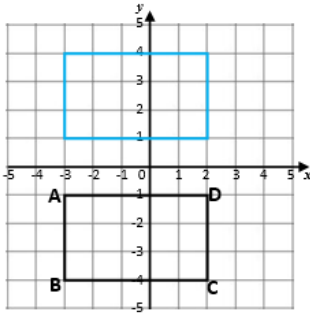
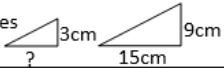
Key Skills

Mild

A: Place Value, Add and Subtract		B: Multiply, Divide and Fractions		C: Measure, Geometry and Statistics	
1. What is the value of the 7 in this number? 7,186,354	5:1 7,000,000 (million)	11. Write all of the factors of 26.	5:8 1, 2, 13, 26	21. If 4 litres is approximately 7 pints, about how many litres are equal to 21 pints?	5:20 12
2. Put these in order, smallest first: 1,012,685 99,956 867,600 1,300,423	5:1 99..., 867..., 1012..., 1300...	12. Which of the following are prime numbers ? 17 21 23 25 27	5:9 17, 23	22. Calculate the area of this rectangular field: 25m 10m	5:21 250m ²
3. Round 596,147 to the nearest ten thousand .	5:2 600,000	13. 4,170 ÷ 6	5:10 695	23. Reflect the shape in the mirror line.	5:28 Shape drawn
4. What is the missing number? 53,450 54,450 56,450	5:2 55,450	14. 1.04 x 100	5:11 104		
5. Put these in order, smallest first: -10, -3, -2, -7, -9, -6	5:3 -10, -9, -7, -6, -3, -2	15. What is 1 ³ ?	5:12 1	24. Rose recorded her height each year:	5:29
6. What year is represented by these Roman Numerals? MMIX	5:4 2009	16. Put these in order, smallest first: $\frac{5}{6}$ $\frac{8}{12}$ $\frac{16}{18}$	5:13 $\frac{8}{12}$ $\frac{5}{6}$ $\frac{16}{18}$	Between which two ages did Rose grow the most?	8 and 9
7. 212,190 - 14,085 =	5:5 198,105	17. Find an equivalent fraction of $\frac{2}{8}$.	5:14 $\frac{1}{4}$		
8. 63,460 + 17,175 =	5:5 80,635	18. Write the answer as a mixed number . $\frac{12}{15} + \frac{6}{15}$	5:15 $1\frac{3}{15}$	25. How much taller was Rose at the age of 10 than when she was 7?	5:29 13cm
9. Complete this sum without written working. 20,500 - 6,200 =	5:6 14,300	19. $\frac{5}{11} \times 44 =$	5:16 20		
10. The temp. was -9°C. It rose by 8°C, then dropped by 10°C. What is it now?	5:7 -11°C	20. Write 0.83 as a fraction.	5:17 $\frac{83}{100}$		
Total (A)		Total (B)		Total (C)	
Test Total (A+B+C)		R (0-9)	Y (10-19)	G (20-25)	

Key Skills

Medium and Spicy

A: Place Value, Add, Subtract, Multiply and Divide			B: Fractions, Ratio, Proportion and Algebra			C: Geometry, Position and Direction		
1. Write in words: 1,900,345	6:1 One million, nine hundred thousand, three hundred and forty five		11. Simplify this fraction fully: $\frac{12}{44}$	6:7 $\frac{3}{11}$		21. Find the missing angle. 	6:24 122°	
2. What is the value of the 5 in this number? 5,273,914	6:1 5,000,000		12. $3\frac{3}{4} + \frac{5}{6} =$	6:8 $4\frac{7}{12}$		22. On the circle write a letter ' C ' on the circumference . 	6:25 'C' written	
3. Round 3,457,318 to the nearest million .	6:1 3,000,000		13. $\frac{4}{9} \div 2 =$	6:9 $\frac{2}{9}$		23. Find the value of a . 	6:26 45°	
4. The temperature rises from -8°C to 14°C. How many degrees has it risen?	6:2 22°C		14. What is the value of the 7 in this number: 58.473	6:10 $\frac{7}{100}$		24. What are the co-ordinates of A ? 	6:27 (-3, -1)	
5. $8,135 \times 13$	6:3 105,755		15. Give your answer as a decimal: $26 \div 8$	6:11 3.25				
6. What is the remainder? $8,014 \div 22$	6:3 6		16. Write this percentage as a fraction and a decimal . 	6:12 $\frac{12}{25}, 0.48$				
7. Write two common factors of 24 and 30.	6:4 1, 2, 3, 6		17. Find 70% of 360.	6:13 252				
8. There are two prime numbers between 20 and 30. What are they?	6:4 23, 29		18. These shapes are similar . 	6:14 5cm				
9. $35 \div 5 + 2$	6:5 9		19. There are t sweets in a bag. 15 of them are eaten. Write an expression.	6:15 t - 15				
10. What is my change if I buy as many £3.45 footballs as I can with £25?	6:6 85p		20. Which two numbers add together to make 23 and have a difference of 7?	6:17 8, 15		25. Reflect rectangle ABCD in the x-axis .	6:28 Shape drawn	
Total (A)			Total (B)			Total (C)		
Test Total (A+B+C)			R (0-9)			Y (10-19)		
						G (20-25)		