

Independent Recap

Algebra
Week 7

Year 6

Arithmetic

1. $2,592 \div 9$

2. $476 + 36 \div 3$

3. $\frac{2}{5} \div 9$

4. 5.4×3.2

Practice: Find a Rule (1 and 2 steps)

5. Recap: Explain how to use this function machine. 

Input \rightarrow $\times 3$ \rightarrow Output

6. What are the outputs to this function machine if these are the inputs?
a. 7 b. 9 c. 100

Input \rightarrow $\times 3$ \rightarrow Output

7. What are the inputs to this function machine if these are the outputs?
a. 5 b. 20 c. -2

Input \rightarrow $- 7$ \rightarrow Output

8. Work out the missing function.

25 \rightarrow \rightarrow 5
100 \rightarrow \rightarrow 20
1 \rightarrow \rightarrow 0.2

9. What are the outputs if these are the inputs?
a. 2
b. 30
c. 100

Input \rightarrow $\times 5$ \rightarrow $+ 3$ \rightarrow Output

10. Explain how to use a function machine with two functions. 

Input \rightarrow $\times 5$ \rightarrow $+ 3$ \rightarrow Output

11. What are the inputs if these are the outputs?
a. 6
b. 20
c. 0.2

Input \rightarrow $\div 2$ \rightarrow $- 4$ \rightarrow Output

12. What are the outputs if these are the inputs?
a. 4
b. $-\frac{3}{2}$
c. $\frac{1}{2}$

Input \rightarrow $+ 6$ \rightarrow $\times 4$ \rightarrow Output

13. Chelsy is using the function machine. 

Is Chelsy correct?
Explain.

5 \rightarrow $+ 3$ \rightarrow $\times 5$ \rightarrow 28

Challenge 14. Circle the odd one out and explain your answer.

a. 8 \rightarrow $\times 4$ \rightarrow $\div 2$ \rightarrow Output

b. 4 \rightarrow $+ 6$ \rightarrow $\times 2$ \rightarrow Output

c. 15 \rightarrow $+ 2$ \rightarrow $- 1$ \rightarrow Output



Answers

Q no.	Question	Answer
1	$2,592 \div 9$	288
2	$476 + 36 \div 3$	488
3	$\frac{2}{5} \div 9$	$\frac{2}{45}$
4	5.4×3.2	17.28
5	Explain how to use this function machine.	To use the function machine with the function 'x 3' you take your number (input) and multiply it by 3 to give the answer (output).
6	What are the outputs to this function machine if these are the inputs?	a. 21, b. 27, c. 300
7	What are the inputs to this function machine if these are the outputs?	a. 12, b. 27, c. 5
8	Work out the missing function.	$\div 5$
9	What are the outputs to this function machine if these are the inputs?	a. 13, b. 153, c. 503
10	Explain how to use a function machine with two functions.	To use a function machine with two function, first take your input number, complete the first function then complete the second function. This will provide you with an answer (output). For example, input = 1 $1 \times 5 = 5$ $5 + 3 = 8$ Output = 8
11	What are the inputs to this function machine if these are the outputs?	a. 20, b. 48, c. 8.4
12	What are the outputs to this function machine if these are the inputs?	a. 40, b. 12, c. 26
13	Is Chelsy correct? Explain.	Chelsy has multiplied her number by five before adding 3. By confusing the order of her calculation, Chelsy has found the wrong answer (output). The correct answer is 40.
14	Circle the odd one out and explain your answer.	Each answer could be the odd one out, the pupil must make their decision clear in their explanation. a. output = 16 b. output = 20 c. output = 16 Possible answers could be: a is the odd one out as it is the only calculation involving division. b is the odd one out as the output is 20, not 16 like the other calculations. c is the odd one out as it does not involve multiplication or division.

Arithmetic

1. $4,592 \div 7$

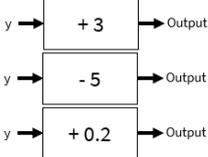
2. $5^3 - 52 \div 4$

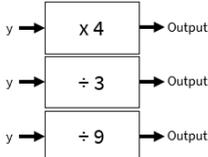
3. $\frac{4}{11} \div 5$

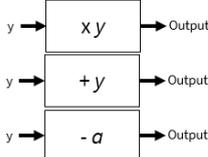
4. 4.7×7.4

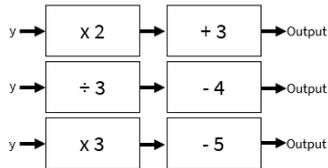
Practice: Forming Expressions

5. Recap: In maths, why are letters sometimes used instead of numbers? Why can this get confusing (think about the symbol for multiplication)? 

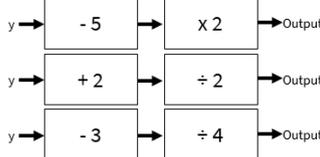
6. Write the expressions to match these function machines. 

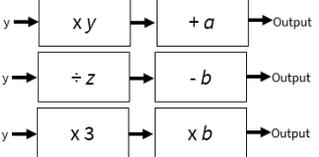
7. Write the expressions to match these function machines. 

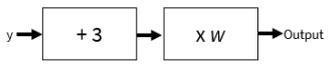
8. Write the expressions to match these function machines. 

9. Write the expressions to match these function machines. 

10. What does 'expression' mean in algebra? 

11. Write the expressions to match these two-step function machines. 

12. Write the expressions to match these two-step function machines. 

13. Lewis is forming an expression for the function machine. He writes: $y+3y \times w$  Is this correct? 

Challenge

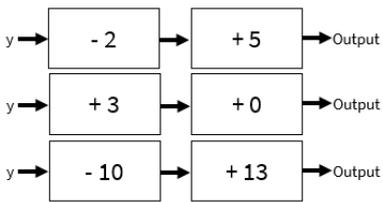
14. Create at least 3 different function machines with two functions that would form this expression.

$y+3$

 You might want to talk to an adult

 Spot the mistake

Answers

Q no.	Question	Answer
1	$4,592 \div 7$	656
2	$5^3 - 52 \div 4$	112
3	$\frac{4}{11} \div 5$	$\frac{4}{55}$
4	4.7×7.4	34.78
5	In maths, why are letters sometimes used instead of numbers?	Letters are used to generalise relationships between quantities. This eliminates the need to give individual specific examples containing actual values. This can be confusing as the letter x looks similar to the multiplication symbol.
6	Write the expressions to match these function machines.	$y+3, y-5, y+0.2$
7	Write the expressions to match these function machines.	$4y, \frac{y}{3}, \frac{y}{9}$
8	Write the expressions to match these function machines.	$y^2, 2y, y-a$
9	Write the expressions to match these two-step function machines.	$2y+3, \frac{y}{3} - 4, 3y - 5$
10	What does 'expression' mean in algebra?	An expression is a statement that is written in algebraic form including any combination of letters, symbols and numbers.
11	Write the expressions to match these two-step function machines.	$2(y-5)$ or $(y-5) \times 2$ or $2 \times (y-5)$ $(y+2)/2$ or $(y+2) \div 2$ $(y-3)/4$ or $(y-3) \div 4$
12	Write the expressions to match these two-step function machines.	y^2+a $\frac{y}{z} - b$ $3by$ or $3yb$
13	Is Lewis correct?	This is incorrect, he has written $3y$ which is the same as $3 \times y$, which is not what he has been asked to do. The correct answer is $(y + 3)w$ or $w(y+3)$ or $(y+3)xw$ or $wx(y+3)$.
14	Create at least 3 different function machines with two functions that would form this expression. $y+3$	Possible answers include 

Arithmetic

1. $4,625 \div 5$

2. $328 - 29 \times 3$

3. $\frac{3}{7} \div 2$

4. 2.1×4.5

Practice: Substitution and Formulae

5. Recap: Explain what 'substitution' means.



6. If square = 5 and circle = 3, work out these:

$$\square + \square - \bigcirc$$

$$\bigcirc \times \square + \bigcirc$$

7. Substitute these values into the expressions to work them out. $x = 3, y = 4, z = 5$

a. $x + y + z$

b. $xy - 7$

c. $3 + 2z$

8. Substitute these values into the expressions to work them out. $a = 10, b = 2, c = 6$

a. abc

b. $\frac{a}{b} + 13$

c. $c^2 - ab$

9. A taxi driver charges £5 for a journey plus 25p for each mile. If c = total cost and m = number of miles, write the formula to represent this.

10. Explain what it means when two letters are next to each other in an equation.



For example, ab

11. With the formula from question 9, work out the cost of a 10-mile journey.

12. How long was the journey if it cost £8.75?

$$8.75 = 5 + 0.25m$$

13. Using the formula $ab+c$, Zeshan substitutes these values into the expression $a = 2, b = 4, c = 7$. He says the answer is 13. Explain Zeshan's mistake.



Challenge

14. a, b and c are two digit whole numbers above 2.

What numbers could a, b and c be?

$$ab - c = 45$$



You might want to talk to an adult



Spot the mistake

Answers

Q no.	Question	Answer
1	$4,625 \div 5$	925
2	$328 - 29 \times 3$	241
3	$\frac{3}{7} \div 2$	$\frac{3}{14}$
4	2.1×4.5	9.45
5	Explain what 'substitution' means.	A substitution is when you substitute a letter or symbol with a value. The same symbol or letter could have multiple values, depending on the substitution.
6	If [square] = 5 and [circle] = 3, work out these:	7, 18
7	Substitute these values into the expressions to work them out.	a. 12, b. 5, c. 13
8	Substitute these values into the expressions to work them out	a. 120, b. 18, c. 16
9	Write the formula to represent the information.	$c = 5 + 0.25m$
10	Explain what it means when two letters are next to each other in an equation.	When letters are next to each other in an equation, it means they are multiplied together. ab means $a \times b$.
11	With the formula from question 9, work out the cost of a 10-mile journey.	£7.50
12	How long was the journey if it cost £8.75?	15 miles
13	Explain Zeshan's mistake.	Zeshan has added all the substitutions instead of following the expression. The correct answer is 15.
14	a, b and c are two digit whole numbers above 2. What numbers could a, b and c be? $ab - c = 45$	Accept substitutions that satisfy the expression. For example, $a = 5, b = 11, c = 10$ $a = 3, b = 17, c = 6$ $a = 8, b = 7, c = 11$

Arithmetic

1. $5,550 \div 6$

2. $(37 + 19) \times 2$

3. $\frac{2}{9} \div 7$

4. 1.1×5.3

Practice: Forming and Solving One Step Equations

5. Recap: Explain what the = sign means.



6. Using y to represent the missing number, write this as an algebraic equation.

I think of a number. I subtract 5. My answer is 20.

7. Write this as an algebraic equation.

I think of a number. I multiply it by 2 and add 3. My answer is 5.

8. Write this as an algebraic equation.

I think of a number. I divide it by 10 and subtract 2. My answer is 6.

9. Solve the equation to find y .

$$y + 7 = 11$$

10. Explain how to find y in this equation.

$$y - 5 = 20$$



11. Solve the equation to find y .

$$5y = 25$$

12. Solve the equation to find y .

$$22 = 30 - y$$

13. Cindy is trying to find y in this expression. $\frac{y}{2} + 7 = 13$.

She thinks $y = 10$.

Explain her mistake.



Challenge

14. Complete the table below using the information given.

w	$5w$	$5w - 8$
8		
	10	
		67



You might want to talk to an adult



Spot the mistake

Answers

Q no.	Question	Answer												
1	$5,550 \div 6$	925												
2	$(37 + 19) \times 2$	112												
3	$\frac{2}{9} \div 7$	$\frac{2}{63}$												
4	1.1×5.3	5.83												
5	Explain what the = sign means.	The = sign does not mean 'the answer is'. It shows that the totals of each side of the symbol are equal.												
6	I think of a number. I subtract 5. My answer is 20.	$y - 5 = 20$												
7	I think of a number. I multiply it by 2 and add 3. My answer is 5.	$2y + 3 = 5$												
8	I think of a number. I divide it by 10 and subtract 2. My answer is 6.	$y/10 - 2 = 6$												
9	Solve the equation to find y.	$y = 4$												
10	Explain how to find y in this equation.	With this question, the answer is not as important as the explanation the pupil provides. To solve the calculation, use the inverse. $20 + 5 = 25$, therefore, $25 - 5 = 20$. $y = 25$												
11	Solve the equation to find y.	$y = 5$												
12	Solve the equation to find y.	$y = 8$												
13	Explain Cindy's mistake.	Cindy has added 13 and 7 then divided both by 2 instead of finding the inverse for each part of the expression. The correct answer is 12.												
14	Complete the table below using the information given.	<table border="1"> <thead> <tr> <th>w</th> <th>5w</th> <th>5w - 8</th> </tr> </thead> <tbody> <tr> <td>8</td> <td>40</td> <td>32</td> </tr> <tr> <td>2</td> <td>10</td> <td>2</td> </tr> <tr> <td>15</td> <td>75</td> <td>67</td> </tr> </tbody> </table>	w	5w	5w - 8	8	40	32	2	10	2	15	75	67
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