

Worked Examples

Mixed Topics

Year 6

Your Challenge

A pupil has been given a SATs style test containing a mixture of arithmetic and reasoning questions. They tried to answer the questions but think they have got some wrong.

Go through the work and check the answers. Help the pupil to understand their errors by explaining where they have gone wrong or how to find the correct answer (there are prompts below the questions to help you).

Note that you will not always be asked to provide the correct answer.

1	514 - 48 =
<div><div>514</div><div>- 48</div><div>534</div></div>	
<div>534</div>	

This answer is: ☐ Correct ☐ Incorrect

If incorrect, explain the error:

2

$$4,385 \times 74 =$$

	4	3	8	5
	x		7	4
1	7	5	4	0
3	0	6	9	5
4	8	2	3	5

48,235

This answer is: ☐ Correct ☐ Incorrect

If incorrect, what should the answer be?

3

Round 3,751 to the nearest 100

0 - 4 = round down	5 - 9 = round up
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3	,	7	5	1	-	-	>	4	,	0	0	0
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4,000

This answer is: ☐ Correct ☐ Incorrect

If incorrect, explain the error. What should the answer be?

4

Put these fractions in order from smallest to largest.

$$\frac{5}{4} \quad \frac{6}{8} \quad \frac{1}{2} \quad \frac{3}{8}$$

$$\frac{6}{8} \quad \frac{3}{8} \quad \frac{5}{4} \quad \frac{1}{2}$$

Smallest

Largest

This answer is: ☒ Correct ☐ Incorrect

If incorrect, explain the correct method to use:

5

$5m + 10y = 35$. m and y are whole numbers

Give set of values m and y could have

a

$$m = 1$$

$y = 3$

b

$$m = 3$$

$y = 2$

This answer is: ☒ Correct ☐ Incorrect

Prove the answers are correct/incorrect:

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6

 $5\frac{1}{6} - \frac{2}{3} =$

$5\frac{1}{6} + \frac{2}{3}$
 $5\frac{1}{6} + \frac{4}{6} = 5\frac{5}{6}$

$5\frac{5}{6}$

This answer is: ☐ Correct ☐ Incorrect

If incorrect, explain the error:

7

Circle the prime number.

58 19 21 91 74

This answer is: ☐ Correct ☐ Incorrect

If incorrect, explain the error (including explaining what a prime number is):

8

 $5 + 2 \times 9 - 8 =$

B	5	+	2	x	9	-	8
O	5	+	2	=	7		
D	7	x	9	=	63		
M	63	-	8	=	55		
A	5	+	2	x	9	-	8
S							

5 5

This answer is: ☐ Correct ☐ Incorrect

If incorrect, what should the answer be?

9

Write in the missing numbers.

47,851

47,751 47,851 47,951

47,051

This answer is: ☐ Correct ☐ Incorrect

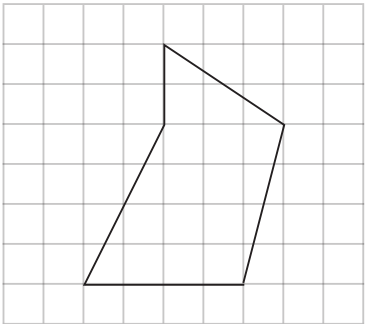
If incorrect, explain the error:

10 Ten times a number is 34
What is the number?

340

This answer is: ☐ Correct ☐ Incorrect
If incorrect, explain the error. What should the answer be?

11 On the grid below use a ruler to draw a pentagon that has one right angle.



This answer is: ☐ Correct ☐ Incorrect
If incorrect, explain the error and show the correct answer on the grid:

12 $\frac{6}{10} + 7\frac{3}{5} =$

$\frac{6}{10} + 7\frac{3}{5} = 7\frac{9}{5}$

$7\frac{9}{5}$

This answer is: ☐ Correct ☐ Incorrect
If incorrect, explain the error. What should the answer be?

13 95% of 300 =

100%	=	300	50%	=	150
50%	=	150	+ 25%	=	75
25%	=	75	20%	=	60
					285
10%	=	30			
20%	=	60			

285

This answer is: ☐ Correct ☐ Incorrect
Is there a quicker way to work out the answer?

Answers

Q no.	Question	Correct/ Incorrect	Error/ Additional Guidance	Content Domain Ref.
1	$514 - 48 = 534$	Incorrect	<p>The pupil does not have a solid understanding of exchanging. They understand that subtracting is 'finding the difference' and have applied this rule to the calculation (finding the difference between 4 and 8).</p> <p>The pupil's answer is larger than the original number. This could suggest they have not checked their answer.</p> <p>Correct answer - 466</p>	3C2
2	$4,385 \times 74 = 48,235$	Incorrect	<p>The pupil has not understood that the position of a digit determines its value. In this case, the 7 has a value of 7 tens but the pupil has mistaken it for meaning 7 ones, therefore multiplying 43,858 by 4 then by 7.</p> <p>Correct answer - 324,490</p>	67Ca
3	Round 3,751 to the nearest 100	Incorrect	<p>The pupil has noted the correct process for rounding (round up if the digit is 5 - 9, round down if the digit is 0 - 4), however, they have not identified the correct column to look at when rounding. Instead of looking to the right of the hundreds column, they have used the hundreds column itself to round.</p> <p>Correct answer - 3,800</p>	6N4
4	Put the fractions in order	Incorrect	<p>The pupil understands that the larger the denominator number, the smaller the fraction. They do not understand that to compare fractions easily, they all need to have the same denominator.</p> <p>They have also not understood that when a numerator is larger than a denominator, it means its total value larger than a whole.</p> <p>Correct answer - $\frac{3}{8}$ $\frac{1}{2}$ $\frac{6}{8}$ $\frac{5}{4}$</p>	5F3
5	Find the value of m and y	Correct	<p>Proof could be provided in the form of calculations written in full or pictures (e.g. bar model) or an explanation of BODMAS.</p> <p>E.g.</p> $\begin{array}{rcl} 5 \times 1 + 10 \times 3 & = & 5 \times 3 + 10 \times 2 \\ 5 + 30 & = & 15 + 20 \\ & = & 35 \end{array}$	6A4
6	$5\frac{1}{6} - \frac{2}{3} = 5\frac{5}{6}$	Incorrect	<p>The pupil has added when the question has stated to subtract. Here the pupil would need reminding of the importance of checking the question carefully before/ after completing it.</p> <p>Correct answer - $4\frac{3}{6}$ or $4\frac{1}{2}$</p>	6F4

Answers

Q no.	Question	Correct/ Incorrect	Error/ Additional Guidance	Content Domain Ref.
7	Circle the prime number	Incorrect	The pupil does not fully understand prime numbers. They may have identified 91 as being a large odd number and assumed it was a prime number (91's factors = 1, 7, 13, 91). Prime number definition - A natural number with only two factors, 1 and itself. Correct answer - 19	5C5b 6C5
8	$5 + 2 \times 9 - 8 = 55$	Incorrect	The pupil knows there is an order to operations (BODMAS) but has not applied or understood this. Correct answer - 15 $5 + 2 \times 9 - 8 =$ $5 + 18 - 8 =$ $23 - 8 = 15$	6C9
9	Write in the missing numbers	Incorrect	The pupil has identified that the given numbers are increasing by 100. For the first answer, they have added, not subtracted 100. For the second answer, they have an understanding of crossing a boundary as they have changed the digit 9 to a place holder of 0 but they have not then changed the thousands column accordingly. Correct answers - 47,651 and 48,051	5N1
10	Ten times a number is 34. What is the number?	Incorrect	The pupil has misread the question. They have multiplied 34 by ten. Correct answer - 3.4	4C6b
11	Draw a pentagon with one right angle	Incorrect	None of the angles are right angles. The pupil does not understand what a right angle is. The pupil does, however, know the properties of a pentagon. The pupil needs to know that a right angle is exactly 90° . Answers are correct if they have the properties of a pentagon and only one right angle.	6M7b
12	$\frac{6}{10} + 7\frac{3}{5} = 7\frac{9}{15}$	Incorrect	The pupil has added the denominators as well as the numerators. They have not understood that to make the calculation easier to solve, they need to find the lowest common denominator then complete the calculation. Correct answer - $8\frac{2}{10}$ or $8\frac{1}{5}$	6F4
13	95% of 300 = 285	Correct	While this is correct, it is not an efficient method. A quicker method to find the answer would be to find 5% to subtract from 100%.	6R2