Your Challenge

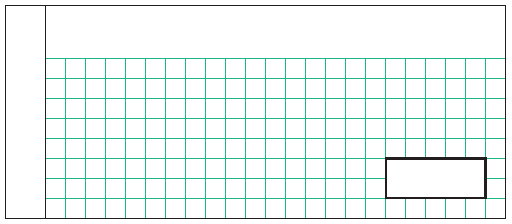
Worked Examples

## 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.

Mixed Topics



**1**

514 - 48 =

**5 1 4**

**– 4 8**

**5 3 4**

**5 3 4**

Year 6

This answer is:

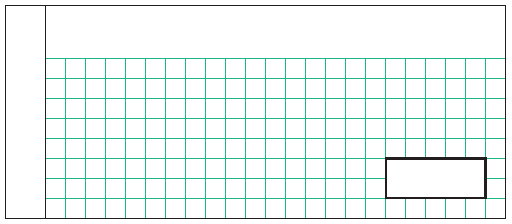
Correct

Incorrect

If incorrect, explain the error:



## Put these fractions in order from smallest to largest.



**2**

4,385 x 74 =

**4 3 8 5**

**x 7 4**

**1 7 5 4 0**

**3 0 6 9 5**

**4 8 2 3 5**

**4 8 , 2 3 5**

**4**

|  |  |  |  |
| --- | --- | --- | --- |
| 5 | 6 | 1 | 3 |
| 4 | 8 | 2 | 8 |

|  |  |  |  |
| --- | --- | --- | --- |
| **6** | **3** | **5** | **1** |
| **8** | **8** | **4** | **2** |
| Smallest |  |  | Largest |

This answer is:

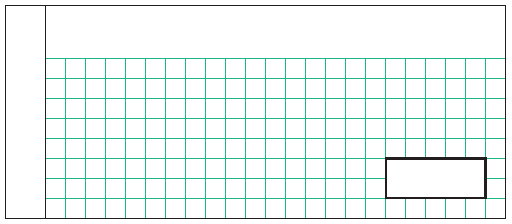
Correct

Incorrect

This answer is: Correct Incorrect If incorrect, what should the answer be?

If incorrect, explain the correct method to use:

# 5m + 10y = 35. m and y are whole numbers Give set of values m and y could have



**3**

Round 3,751 to the nearest 100

**0 - 4 = r o u n d d o w n**

**5 - 9 = r o u n d u p**

**3 , 7 5 1 - - > 4 , 0 0 0**

**4 , 0 0 0**

**5**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **a** | **m** | **=** | **1** |  | **y** | **= 3** |
|  |  |  |  |  |  |  |
| **b** | **m** | **=** | **3** |  | **y** | **= 2** |

This answer is:

Correct

Incorrect

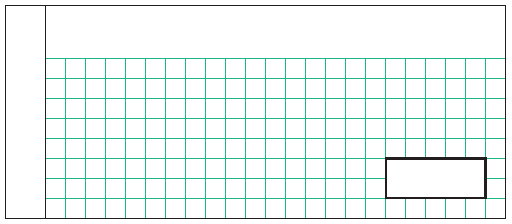
This answer is: Correct Incorrect

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

Prove the answers are correct/incorrect:

|  |  |  |  |
| --- | --- | --- | --- |
|  | **B** | **5** | **+ 2 x 9 - 8** |
| **O** | **5** | **+ 2 = 7** |
| **D** | **7** | **x 9 = 6 3** |
| **M** | **6** | **3 - 8 = 5 5** |
| **5** | **A** | **5** | **+ 2 x 9 - 8 = 5 5** |
| **6** | **S** |  |  |

This answer is:



**6**

5 1 – 2

6 3

=

**5 1 + 2**

**6 3**

**5 1 + 4 = 5 5**

**6 6**

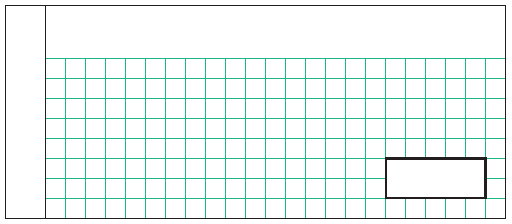
**6**

**5**

Correct

Incorrect

This answer is:



**8**

5 + 2 x 9 - 8 =

**5 5**

Correct

Incorrect

If incorrect, explain the error: If incorrect, what should the answer be?

# Circle the prime number.

**7**

91

58 19 21 74

Write in the missing numbers.

47,751 47,851 47,951

**9**

**47,051**

**47,851**

This answer is:

Correct

Incorrect

This answer is:

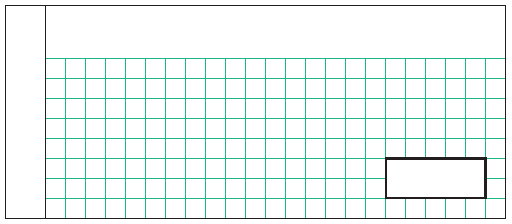
Correct

Incorrect

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

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

**10**



**12**

10

6 + 7 3

5

=

**1 0 5**

**6 + 7 3 = 7 9**

**1 5**

**7 9**

**1 5**

**340**

This answer is: Correct Incorrect

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

This answer is:

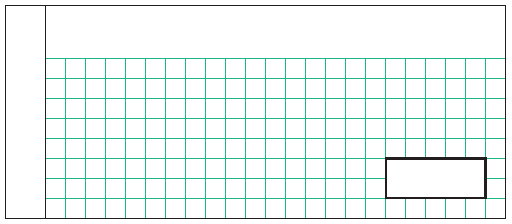
Correct

Incorrect

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

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

**11**



**13**

95% of 300 =

**1 0 0 % = 3 0 0 5 0 % = 1 5 0**

**5 0 % = 1 5 0 + 2 5 % = 7 5**

**2 5 % = 7 5 2 0 % = 6 0**

**2 8 5**

**1 0 % = 3 0**

**2 0 % = 6 0**

**2 8 5**

This answer is:

Correct

Incorrect

This answer is:

Correct

Incorrect

If incorrect, explain the error and show the correct answer on the grid:

Is there a quicker way to work out the answer?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q no.** | **Question** | **Correct/ Incorrect** | **Error/ Additional Guidance** | **Content Domain Ref.** |
| 1 | 514 - 48 = 534 | Incorrect | 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).  The pupil’s answer is larger than the original number. This could suggest they have not checked their answer.  Correct answer - 466 | 3C2 |
| 2 | 4,385 x 74 = 48,235 | Incorrect | 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.  Correct answer - 324,490 | 67Ca |
| 3 | Round 3,751 to the nearest 100 | Incorrect | 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.  Correct answer - 3,800 | 6N4 |
| 4 | Put the fractions in order | Incorrect | 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.  They have also not understood that when a numerator is larger than a denominator, it means its total value larger than a whole.  3 1 6 5  Correct answer - 8 2 8 4 | 5F3 |
| 5 | Find the value of m and y | Correct | Proof could be provided in the form of calculations written in full or pictures (e.g. bar model) or an explanation of BODMAS.  E.g.  5 x 1 + 10 x 3 = 5 x 3 + 10 x 2 =  5 + 30 = 35 15 + 20 = 35 | 6A4 |
| 6 | 5 1 - 2 = 5 5  6 3 6 | Incorrect | 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.  Correct answer - 4 3 or 4 1  6 2 | 6F4 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q no.** | **Question** | **Correct/ Incorrect** | **Error/ Additional Guidance** | **Content Domain Ref.** |
| 7 | Circle the prime number | Incorrect | The pupil does 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 x 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 x 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 90o.  Answers are correct if they have the properties of a pentagon and only one right angle. | 6M7b |
| 12 | 6 + 7 3 = 7 9  10 5 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 2 or 8 1  10 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 |