

Maths Assessment Year 6 Term 3: Addition, Subtraction, Multiplication and Division

This Assessment is divided into 3 sections should teachers wish to spread it over 2 or 3 sessions.

Section **A** is mental calculations; **B** is mainly division and multiplication; **C** is mainly addition and subtraction.

Section A

1. Perform mental calculations, including with mixed operations and large numbers.

Section B

2. Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.
3. Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.
4. Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context.
5. Identify common factors, common multiples and prime numbers.
6. Use their knowledge of the order of operations to carry out calculations involving the four operations.

Section C

7. Solve addition and subtraction multi-step problems in contexts, deciding which operations to use and why.
8. Solve problems involving addition, subtraction, multiplication and division.
9. Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

Name:

Date:

Maths Assessment Year 6 Term 3: Addition, Subtraction, Multiplication and Division

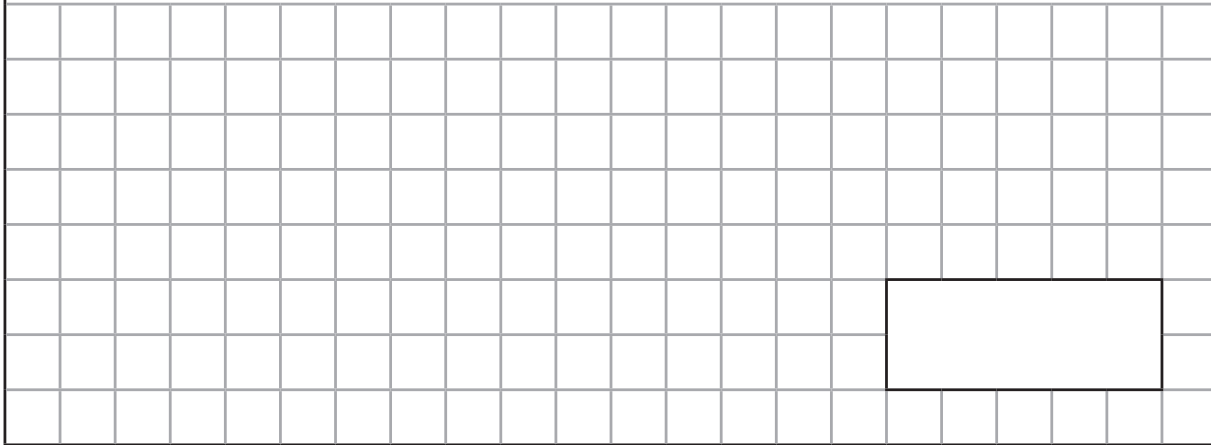
Section A

1. Perform mental calculations, including with mixed operations and large numbers.

Answer the questions your teacher reads out and write the answers in the spaces below.

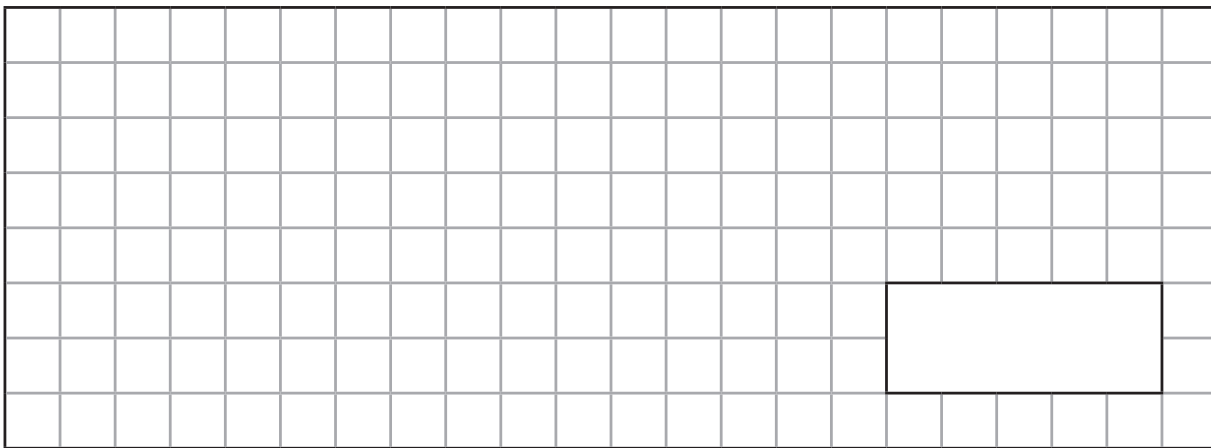
| | |
|----|------------|
| a) | k) |
| b) | l) people |
| c) | m) pencils |
| d) | n) £ |
| e) | o) |
| f) | p) |
| g) | q) £ |
| h) | r) m |
| i) | s) |
| j) | t) |

b) $450 \div 12$



2 marks

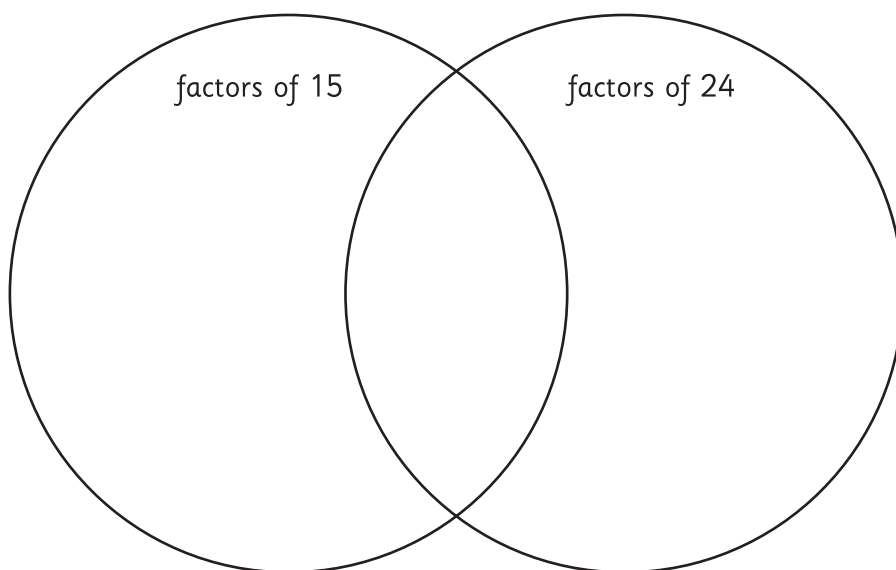
c) A manufacturer makes plastic models. Each model weighs 32g. How many models can be made from 1kg of plastic?



1 mark

5. Identify common factors, common multiples and prime numbers.

a) Put these numbers in the correct places in this Venn diagram: 2, 3, 5, 8, 12



2 marks

Total for this page

b) Identify the common factors of 12 and 18.



c) Circle all the numbers that are common multiples of 3 and 7.

13 21 37 42 63 72



d) What is the lowest common multiple of 4 and 9?



e) Write all the prime numbers between 60 and 80.



6. Use their knowledge of the order of operations to carry out calculations involving the four operations

a) Find the answers to these calculations:

| | |
|------------------------|--------------------------|
| $4 + 5 \times 6 - 4 =$ | $30 \div (5 \times 2) =$ |
| $7 \times 12 \div 2 =$ | $(9 - 3) + 11 =$ |



b) Circle the calculation that would give the answer 18:

| | | |
|--------------------|--------------------|------------------|
| $6 + (3 \times 2)$ | $(6 + 3) \times 2$ | $6 + 3 \times 2$ |
|--------------------|--------------------|------------------|



c) Jack has 8 football cards in his pocket and 4 in his bag. He shares them equally between his two friends.

Circle the calculation that correctly shows the order of steps in this problem:

| | | |
|------------------|----------------|------------------|
| $(8 + 4) \div 2$ | $8 + 4 \div 2$ | $8 + (4 \div 2)$ |
|------------------|----------------|------------------|



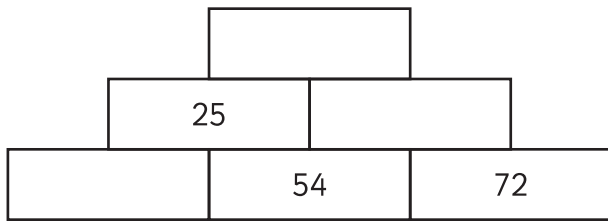
d) Use these numbers to make the calculation correct:

| | |
|-------|------------------------------|
| 3 2 9 | $(_ - _) \div _ = 3$ |
| 5 3 8 | $(_ - _) \times _ = 25$ |

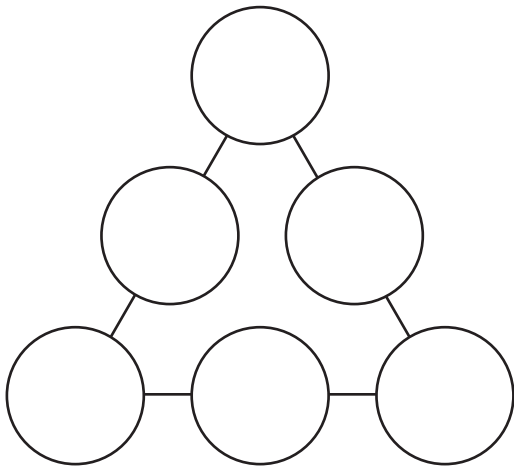


8. Solve problems involving addition, subtraction, multiplication and division.

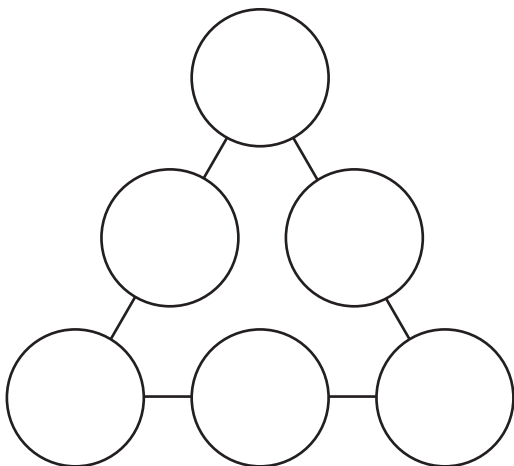
a) In the following grid each number is the difference between the 2 numbers beneath. Complete the grid.



b) Use the numbers 1, 2, 3, 4, 5, 6 once in each pattern so that each side of the triangle adds up to the same number.



Now use the same digits to complete the pattern with the same rule, but a different total.



1 mark

3 marks

Total for this page

9. Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

a) Sam estimates that $34 \times 7 \approx 300$ because $34 \times 10 = 340$ and 34×7 must be less, so it's about 300.

Explain what you think of Sam's estimation.

2 marks

b) A box of wood costs £7.95. A builder buys 12 packs of wood. Estimate the cost of the wood.

2 marks

c) Circle the most sensible estimate to this calculation:

0.712 x 9

3 12 6 9

1 mark

d) This table shows the 5 football clubs in England with the highest attendance.

| Club | Highest attendance |
|-------------------|--------------------|
| Manchester United | 75 415 |
| Arsenal | 60 084 |
| Manchester City | 54 523 |
| Newcastle United | 51 682 |
| Liverpool | 44 228 |

Estimate the total of these highest attendances.

2 mark

Total for this page

e) Here is a receipt for some shopping:

| | |
|--------------|------|
| Soy Sauce | 0.47 |
| Leeks | 0.89 |
| Apples | 1.19 |
| Olive Spread | 0.79 |
| Peppers | 1.17 |
| Tomatoes | 0.79 |
| Yoghurt | 0.69 |
| Cheese | 1.59 |
| Blueberries | 1.89 |

Estimate the total cost of the items.



3 marks



Total for
this page

Teacher Script and Answer Sheet: Maths Assessment Year 6:

Addition, Subtraction, Multiplication and Division



Section A (Q1): Involves the teacher reading out questions for children to calculate mentally, with no written working out.

| question | script | marks | answer |
|---|---|-------|--------|
| 1. Perform mental calculations, including with mixed operations and large numbers. | | | |
| Read these questions to the class: | | | |
| a | Subtract 108 from 417. | 1 | 309 |
| b | Calculate the sum of 478 and 123. | 1 | 601 |
| c | What is twice 516? | 1 | 1032 |
| d | Multiply 99 by 6. | 1 | 594 |
| e | Divide 132 by 12 and subtract 9. | 1 | 2 |
| f | How many fours are there in 208? | 1 | 52 |
| g | What number is 50 more than 2951? | 1 | 3001 |
| h | Multiply 50 by 80. | 1 | 4000 |
| i | Add 15 to the product of 6 and 9. | 1 | 69 |
| j | What is the remainder when you divide 212 by 25? | 1 | 12 |
| k | If I halve a number, the answer is 83. What is the number? | 1 | 166 |
| l | One Saturday at a swimming pool, 109 adults and 165 children went swimming. How many people went to the swimming pool that day? | 1 | 274 |
| m | Out of a box of 240 pencils, there are 178 left. How pencils have been taken out of the box? | 1 | 62 |
| n | Alex buys a t-shirt for £2.99 and a cap for £2.50. She pays with a £10 note. How much change will she get? | 1 | £4.51 |
| o | 94 than a number is 320. What is the number? | 1 | 414 |
| p | Add 4.5 to 18. | 1 | 22.5 |
| q | Three pairs of shin pads cost £8. How much will 9 pairs of shin pads cost? | 1 | £24 |
| r | The perimeter of a regular hexagon is 36m What is the length of one side? | 1 | 6m |
| s | What is 100 add 350, subtract 75? | 1 | 375 |
| t | Harmony is playing a game and needs to score 100 to win. Her score is 67, how many more does she need? | 1 | 33 |

Section B (Q2-6): Is for children to complete independently.

| question | answer | marks | notes |
|---|------------------|-------|---|
| 2. Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. | | | |
| a | 702 | 2 | 2 marks for correct answer. 1 mark if only 1 arithmetical error. |
| b | 25 480 | 2 | 2 marks for correct answer. 1 mark if only 1 arithmetical error. |
| 3. Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. | | | |
| a | 1523 | 2 | 2 marks for correct answer. 1 mark if only 1 arithmetical error |
| b | 619 | 2 | 2 marks for correct answer. 1 mark if only 1 arithmetical error |
| c | $58 \frac{1}{7}$ | 1 | |
| d | 376 | 3 | 3 marks for the correct answer. 2 or 1 marks available for correct method with 1 or 2 mistakes. |
| 4. Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context. | | | |
| a | 73.75 | 2 | 2 marks for each correct answer. 1 mark if only 1 arithmetical error. |
| b | 37.5 | 2 | 2 marks for each correct answer. 1 mark if only 1 arithmetical error. |
| c | 31 models | 1 | |
| 5. Identify common factors, common multiples and prime numbers. | | | |
| a | | 2 | 2 marks for all correct. 1 mark for only 1 error but the rest correct. |

| question | answer | marks | notes |
|----------|--------------------|-------|-------|
| b | 1, 2, 3, 6 | 1 | |
| c | 21, 42 and 63 | 1 | |
| d | 36 | 1 | |
| e | 61, 67, 71, 73, 79 | 1 | |

6. Use their knowledge of the order of operations to carry out calculations involving the four operations.

| | | | | | | | |
|------------------------------------|--|------------------------------------|-------------------------------------|------------------------------------|------------------------------|---|--|
| a | <table border="1"> <tr> <td>$4 + 5 \times 6 - 4 = \mathbf{30}$</td> <td>$30 \div (5 \times 2) = \mathbf{3}$</td> </tr> <tr> <td>$7 \times 12 \div 2 = \mathbf{42}$</td> <td>$(9 - 3) + 11 = \mathbf{17}$</td> </tr> </table> | $4 + 5 \times 6 - 4 = \mathbf{30}$ | $30 \div (5 \times 2) = \mathbf{3}$ | $7 \times 12 \div 2 = \mathbf{42}$ | $(9 - 3) + 11 = \mathbf{17}$ | 4 | |
| $4 + 5 \times 6 - 4 = \mathbf{30}$ | $30 \div (5 \times 2) = \mathbf{3}$ | | | | | | |
| $7 \times 12 \div 2 = \mathbf{42}$ | $(9 - 3) + 11 = \mathbf{17}$ | | | | | | |
| b | <table border="1"> <tr> <td>$6 + (3 \times 2)$</td> <td>$(6 + 3) \times 2$</td> <td>$6 + 3 \times 2$</td> </tr> </table> | $6 + (3 \times 2)$ | $(6 + 3) \times 2$ | $6 + 3 \times 2$ | 1 | | |
| $6 + (3 \times 2)$ | $(6 + 3) \times 2$ | $6 + 3 \times 2$ | | | | | |
| c | <table border="1"> <tr> <td>$(8 + 4) \div 2$</td> <td>$8 + 4 \div 2$</td> <td>$8 + (4 \div 2)$</td> </tr> </table> | $(8 + 4) \div 2$ | $8 + 4 \div 2$ | $8 + (4 \div 2)$ | 1 | | |
| $(8 + 4) \div 2$ | $8 + 4 \div 2$ | $8 + (4 \div 2)$ | | | | | |
| d | <table border="1"> <tr> <td>$3 \ 2 \ 9$</td> <td>$(9 - 3) \div 2 = 3$</td> </tr> <tr> <td>$5 \ 3 \ 8$</td> <td>$(8 - 3) \times 5 = 25$</td> </tr> </table> | $3 \ 2 \ 9$ | $(9 - 3) \div 2 = 3$ | $5 \ 3 \ 8$ | $(8 - 3) \times 5 = 25$ | 2 | |
| $3 \ 2 \ 9$ | $(9 - 3) \div 2 = 3$ | | | | | | |
| $5 \ 3 \ 8$ | $(8 - 3) \times 5 = 25$ | | | | | | |

7. Solve addition and subtraction multi-step problems in contexts, deciding which operations to use and why.

| a | Drink £1.20 and the fruit 60p | 2 | 2 marks for a correct answer. 1 mark for an incorrect answer using a correct method. | | | | | | | | | | | | | | | | | | | | |
|------------|--|--------------|--|-------|--------|------|---------|-----|--------|------------|---------|-----|----------------|------------|---------------|-----|--------|--|--|--------------|---------|---|---|
| b | 9 children came by bus | 2 | 2 marks for a correct answer. 1 mark for an incorrect answer using a correct method. | | | | | | | | | | | | | | | | | | | | |
| c | <table border="1"> <thead> <tr> <th>Area</th> <th>Money at the end</th> <th>Float</th> <th>Profit</th> </tr> </thead> <tbody> <tr> <td>Hall</td> <td>£108.45</td> <td>£25</td> <td>£83.45</td> </tr> <tr> <td>Classrooms</td> <td>£172.35</td> <td>£40</td> <td>£132.35</td> </tr> <tr> <td>Playground</td> <td>£98.52</td> <td>£20</td> <td>£78.52</td> </tr> <tr> <td colspan="2"></td> <td>Total Profit</td> <td>£294.32</td> </tr> </tbody> </table> | Area | Money at the end | Float | Profit | Hall | £108.45 | £25 | £83.45 | Classrooms | £172.35 | £40 | £132.35 | Playground | £98.52 | £20 | £78.52 | | | Total Profit | £294.32 | 2 | 2 marks for all 3 answers correct. 1 mark for 2 answers correct |
| Area | Money at the end | Float | Profit | | | | | | | | | | | | | | | | | | | | |
| Hall | £108.45 | £25 | £83.45 | | | | | | | | | | | | | | | | | | | | |
| Classrooms | £172.35 | £40 | £132.35 | | | | | | | | | | | | | | | | | | | | |
| Playground | £98.52 | £20 | £78.52 | | | | | | | | | | | | | | | | | | | | |
| | | Total Profit | £294.32 | | | | | | | | | | | | | | | | | | | | |
| d | £137.70 | 2 | 2 marks for a correct answer. 1 mark for an incorrect answer using a correct method. | | | | | | | | | | | | | | | | | | | | |

| question | answer | marks | notes |
|--|---|-------|--|
| e | 5.4km (She runs $(13.4 + 4.8)$ km $\times 3 = 54.6$ km) on the first 6 days. | 2 | 2 marks for a correct answer. 1 mark for an incorrect answer using a correct method. |
| f | £99 | 1 | |
| 8. Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. | | | |
| a | | 1 | |
| b | | 3 | 3 marks for both correct. 2 marks for 1 correct. |
| c | 72 | 2 | 2 marks for correct answer. 1 mark for correct method with only 1 mistake. |
| d | $26 + 16 - 12 + 19 = 49$ | 1 | |
| e | | 1 | |
| f | | 1 | |
| g | | 1 | |

| question | answer | marks | notes |
|--|--|-------------|---|
| 9. Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. | | | |
| a | Give 2 marks for any reasonable explanation that Sam's explanation is too high. Good answers may say $40 \times 7 = 280$ so 300 is too high. | 2 | 1 mark for a single calculation representing an estimate e.g. $40 \times 7 = 280$, but no written explanation. |
| b | £96 | 2 | 2 marks for £96, which is $12 \times £8$. 1 mark for writing $12 \times £8$ but incorrectly calculating the answer. No marks for calculating $12 \times £7.95$. |
| c | 6 | 1 | |
| d | 285 000 | 2 | 2 marks for an estimate in the region of 285 000 |
| e | £11 | 3 | 3 marks for an estimate of £11 2 marks for an estimate between £10 and £12 inclusive but not £11 and 1 mark for an estimate between £9 and £9.99 or £12.01 and £13 inclusive. No marks for a calculation to get an exact answer (£11.06) Children may note down rounding / estimates of each item. |
| | | Total 82 | |