Maths Assessment Year 6 Term 2: 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: 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)	h)	o)
b)	i)	p)
c)	j)	q) £
d)	k)	r) m
e)	l) people	s)
f)	m) children	t) £
g)	n) £	

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.

   Use a **written method** to find the answer to these calculations:
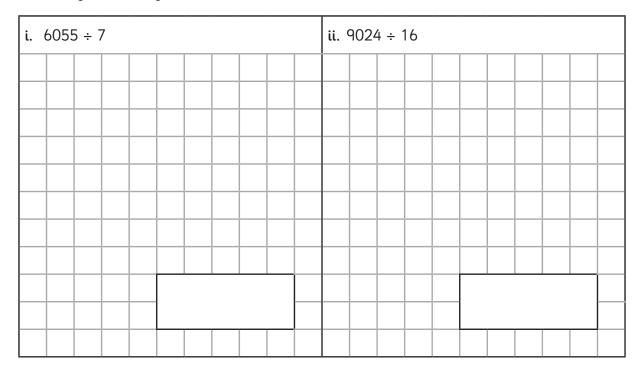
   Show your working out.

a) 47 x 18 =	**b)** 621 x 37 =

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) Use **long division** to find the answer to these calculations:
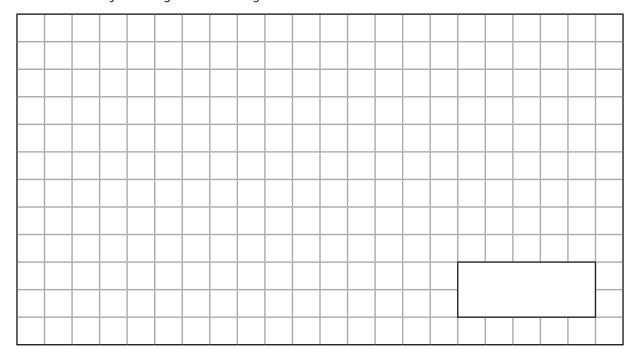
Show your working out.

i. 6055 ÷ 7	ii. 9024 ÷ 16

b) Find the answer to this calculation. **Show the remainder as a fraction.**

693 ÷ 8 =

4 marks

1 mark

Total for this page

c) A singer sells a single as a music download and CD, making a total profit of £3375.25. He sells 8 756 CD singles, earning 25p for every single sold. He earns 13p for each music download of the single. How many music downloads did he sell?

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.

Use the **written method** of short division to calculate these answers, giving the answers as a decimal number.

a)

i) 376 ÷ 5 =	**ii)** 764 ÷ 16 =

b) A teacher wants to cut lengths of string measuring 15cm from a ball of string. The ball measures 8m in total. How many complete lengths of 15cm will the teacher be able to cut?

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

a) Put these numbers in the correct places in this sorting diagram:

2   3   4   5   6   7   8   9   10   11   12

	Is a factor of 20	Is not a factor of 20
Is a factor of 36		
Is not a factor of 36		

b) Identify the common factors of 9 and 15:

c) Circle all the numbers that are common multiples of 4 and 9:

36   70   65   47   72   99

d) What is the lowest common multiple of 3 and 7?

e) Write all the prime numbers between 40 and 60:

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

a) Circle the correct answer for each calculation:

i. $23 - (14 + 5) =$ 4   14   24

ii. $5 \times (6 + 9) =$ 20   39   75

iii. $6 + 5 \times 3 =$ 21   25   33

iv. $(13 - 8) \times 7 =$ -43   35   43

v. $36 \div (12 \div 3) =$ 1   3   9

5 marks

b) $34 - (4 \times 7) =$

1 mark

c) $6 + 5^2 =$

1 mark

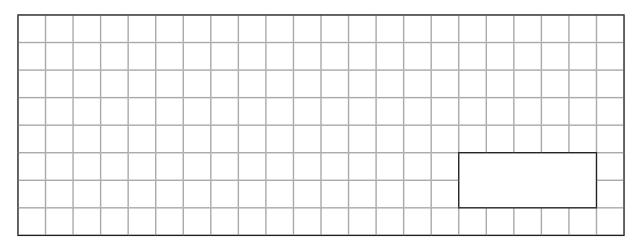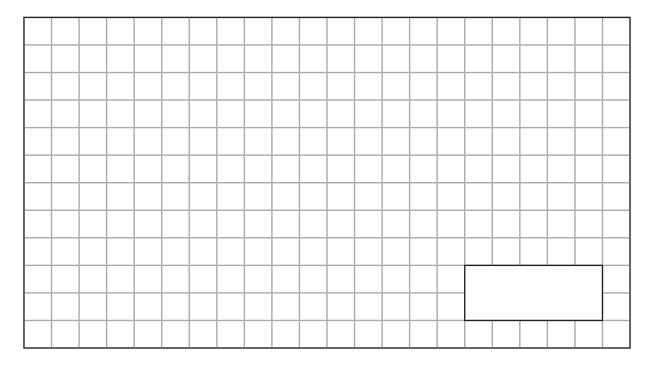Total for this page

d) $6^2 \div (9 - 5) =$

Section C

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

a) John buys 2 drinks. One of the drinks costs 50p more than the other. He pays for the drinks with a £2 coin and gets 40p change.

How much will each drink cost?

b) At a school there are 120 children in Key Stage 2. On one day 13 children go home for dinner and 8 children are absent. The remaining children have either a hot meal or sandwiches from home. Twice as many have a hot meal than have sandwiches.

How many children have a hot meal?

c) A small cinema records the number of people attending each film. Here are the details for a showing of the film Star Wars: The Force Awakens. 168 people came to the screening. Complete the table.

	Male	Female	Total
Adult	53		96
Child		25	

d) Janek has £24 in his bank account, and £15 in cash. He intends to buy 2 games for £12.50 and £17.

How much money will he have left after buying the games?

e) A waiter and waitress are given tips during an evening at a restaurant. The waiter gets £38 and the waitress £45. They agree to share the tips.

How much will they each receive after sharing the tips?

f) Yvette is going on holiday. Her baggage allowance on the aeroplane is 27kg for both hand luggage and hold luggage. She weighs her luggage. The hand luggage weighs 9.54 kg and the hold luggage 21.67kg.

How much weight must she lose from her luggage to stay within the allowance?

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

a) In the following grid each number is the product of the 2 numbers beneath.
Complete the grid.

```
        ┌────────┐
        │        │
   ┌────┴───┬────┴───┐
   │   12   │        │
┌──┴───┬────┴───┬────┴───┐
│      │    3   │    7   │
└──────┴────────┴────────┘
```

b) Complete this grid:

```
┌──────┐   +8    ┌──────┐   ÷4    ┌──────┐
│      │ ←────── │      │ ──────→ │      │
└──────┘         └──────┘         └──────┘
  │ ÷3                              │ +17
  ↓                                 ↓
┌──────┐                          ┌──────┐
│  24  │                          │      │
└──────┘                          └──────┘
  ↑ x4                              ↑ -12
┌──────┐   -9    ┌──────┐   x3    ┌──────┐
│      │ ←────── │      │ ──────→ │      │
└──────┘         └──────┘         └──────┘
```

c) Jan starts with a number:

He adds 14 to the number, then multiplies the answer by 3.
He subtracts six and divides the answer by five.
He is left with 9. What number did Jan start with?

d) Use the symbols + and − to make this calculation correct:

19 ☐ 7 ☐ 13 ☐ 8 = 21

e) Circle 3 numbers that total 100.

46   37   28   47   16   26

f) Write the missing digits to make this addition calculation correct.

```
    ☐  6  4  ☐
  +    ☐  ☐  4
  _____
    3  0  4  1
```

g) Write the missing digits to make this short division correct.

```
        4  8  9
  ☐ ) 2 ☐ 3 ☐
```

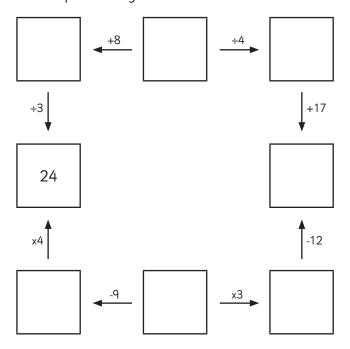**9.** Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

a) Circle the best estimate for this calculation and explain why you have made the choice.

27 x 9 =   220   250   280   300

_____

_____

_____

b) A pack of wood costs £4.95. A builder buys 14 packs of wood. Estimate the cost of the wood.

c) Circle the most sensible estimate to this calculation:

0.243 x 16

2   8   4   16

This table shows the 6 films with the highest takings in UK cinemas over the weekend 1st – 3rd January 2016.

Film	Weekend Takings
Daddy's Home	£2 908 358
Joy	£1 519 936
Snoopy And Charlie Brown: The Peanuts Movie	£1 296 199
Star Wars: The Force Awakens	£10 304 562
The Danish Girl	£1,376,191
The Good Dinosaur	£849,828

d) Estimate the total takings for these 6 films.

e) A family go to a café for lunch. Here are their selections from the menu:

3 sandwiches   £2.95 each

2 bowls of soup   £3.50 each

2 baguettes   £3.75 each

4 slices of cake   £2.25 each

3 glasses of juice   £1.95 each

1 cup of tea   £2.40

1 cappuccino   £2.60

Estimate the cost of their lunch.

1 mark

2 marks

3 marks

Total for this page

Teacher Script and Answer Sheet: Maths Assessment Year 6:
Addition, Subtraction, Multiplication and Division

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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 76 from 401	1	325
b	Calculate the sum of 304 and 415	1	719
c	Double 549	1	1098
d	Multiply 104 by 4	1	416
e	Divide 132 by 11 and add 21.	1	33
f	How many sixes are there in 312?	1	52
g	What number is 32 more than 1996?	1	2028
h	Multiply 30 by 15	1	450
i	Multiply 8 by 7 and subtract 12	1	44
j	What is the remainder when you divide 155 by 20?	1	15
k	If I double a number, the answer is 184. What is the number?	1	92
l	One Saturday at a theatre, 160 people attend a matinee performance and 232 attend the evening performance. How many people went to the theatre that day?	1	393
m	Out of 205 children in school, 64 go on a school trip. How many children are left in school?	1	141
n	Lottie buys 2 books costing £3.99 each. She pays with a £10 note. How much change will she get?	1	£2.02
o	72 more than a number is 562. What is the number?	1	490
p	Subtract 6 from 17.3	1	11.3
q	Five footballs cost £12. How much will 15 footballs cost?	1	£36
r	The perimeter of a square is 32m What is the length of one side?	1	8m
s	What is 300 subtract 75, subtract 150?	1	75
t	Alex has £72. How much more does he need so he has £100.	1	£28

Section B (Q2-8) : 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	846	2	2 marks for correct answer. 1 mark if only 1 arithmetical error
b	22 977	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	**i.** 865 **ii.** 564	4	2 marks for each correct answer. 1 mark if only 1 arithmetical error.
b	$86\frac{5}{8}$	1	
c	9125	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	**i.** 75.2 **ii.** 47.75	4	2 marks for each correct answer. 1 mark if only 1 arithmetical error
b	53 lengths	1	
5. Identify common factors, common multiples and prime numbers.			
a	<table><tr><td></td><td>Is a factor of 20</td><td>Is not a factor of 20</td></tr><tr><td>Is a factor of 36</td><td>**2, 4**</td><td>**3, 6, 9, 12**</td></tr><tr><td>Is not a factor of 36</td><td>**5, 10**</td><td>**7, 8, 11**</td></tr></table>	2	
b	1, 3	1	
c	36 and 72	1	
d	21	1	
e	41, 43, 47, 53, 59	1	

question	answer	marks	notes
6. Use their knowledge of the order of operations to carry out calculations involving the four operations.			
a	**i.** 4 **ii.** 75 **iii.** 21 **iv.** 35 **v.** 9	5	1 mark for each correct answer
b	6	1	
c	31	1	
d	9	1	
7. Solve addition and subtraction multi-step problems in contexts, deciding which operations to use and why.			
a	£1.05 and 55p	2	2 marks for a correct answer. 1 mark for an incorrect answer using a correct method.
b	66 children had hot dinners	2	2 marks for a correct answer. 1 mark for an incorrect answer using a correct method.
c	<table><tr><td></td><td>Male</td><td>Female</td><td>Total</td></tr><tr><td>Adult</td><td>53</td><td>**43**</td><td>96</td></tr><tr><td>Child</td><td>**47**</td><td>25</td><td>**72**</td></tr></table>	2	2 marks for all 3 answers correct. 1 mark for 2 answers correct
d	£9.50	2	2 marks for a correct answer. 1 mark for an incorrect answer using a correct method.
e	£41.50	2	2 marks for a correct answer. 1 mark for an incorrect answer using a correct method.
f	4.21kg	1	

question	answer	marks	notes
8. Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.			
a	**252** / 12 **21** / **4** 3 7	1	
b	**72** ←+8 **64** ÷4→ **16** ÷3↓ +17↓ 24 **33** x4↑ -12↑ **6** ←-9 **15** x3→ **45**	3	3 marks for all correct. 2 marks for 1 mistake. 1 mark for 2 mistakes.
c	3	2	2 marks for correct answer. 1 mark for correct method with only 1 mistake.
d	19 **+** 7 **-** 13 **+** 8 = 21	1	
e	(46) 37 (28) 47 16 (26)	1	
f	**2** 6 4 **7** + **3** **9** 4 ——————— 3 0 4 1	1	
g	4 8 9 ——————— **6**	2 **9** 3 **4**	1	
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 which does not calculate the answer (243). e.g. 27 x 10 = 270, so 27 x 9 will be about 20 less (250) or 30 x 9 = 270 but will be less so 250.	2	1 mark for a calculation representing an estimate e.g. 30 x 9 = 270, but no written explanation.

question	answer	marks	notes
b	£70	2	2 marks for £70, which is 14 x £5. 1 mark for writing 14 x £5 but incorrectly calculating the answer. No marks for calculating 14 x £4.95.
c	4	1	
d	£18 000 000	2	2 marks for an estimate in the region of £18 000 000
e	£43	3	3 marks for an estimate between £41 and £45 2 marks for an estimate between £39 and £41 or £45 and £47 and 1 mark for an estimate between £37 and £39 or £47 and £49. No marks for a calculation to get an exact answer (£43.20) Children may note down rounding / estimates of each item.
		Total 82	