

Name: _____ Maths Group: _____ Tutor Set: _____

Unit 4 – Place Value, Rounding, Estimating and Checking

Homework Booklet KS3 Levels 3-8

Complete this table indicating the homework you have been set
and when it is due by.

Date	Homework	Due By	Handed In

Please take care of the booklet as you will be required to make a
donation to replace it if lost or damaged beyond use.

U4 – Place Value, Rounding, Estimating and Checking

Place Value

No Calculator Allowed

Section A

Write these numbers in words:

1 72

2 30

3 427

4 253

5 783

6 500

7 320

8 608

Section B

Write these numbers in figures:

9 Thirty-one

10 Two hundred and fifty-seven

11 Forty

12 Three hundred and sixty-one

13 Five hundred and thirty-four

14 Nine hundred and seventy-eight

15 Seven hundred and three

16 Two hundred and ninety

Section C

What is the value of the '6' in these figures?

1 36

2 268

3 640

4 306

5 699

6 168

U4 – Place Value, Rounding, Estimating and Checking
Ordering Decimals
No Calculator Allowed

Write the following decimals in order, smallest to largest:

- 1) 0.7, 0.5, 0.4, 0.9, 0.2 _____, _____, _____, _____, _____
- 2) 1.3, 1.8, 1.6, 1.4, 1.9 _____, _____, _____, _____, _____
- 3) 0.9, 1.3, 0.7, 1.1, 2.4 _____, _____, _____, _____, _____
- 4) 3.6, 3.9, 3.59, 3.91, 3.4 _____, _____, _____, _____, _____
- 5) 2.14, 2.7, 3.2, 2.28, 2.95 _____, _____, _____, _____, _____
- 6) 6.53, 3.8, 11.2, 6.7, 1.11 _____, _____, _____, _____, _____

Write the following decimals in order, smallest to largest:

- 1) 5.34, 5.912, 5.3147, 5.98, 5.316 _____, _____, _____, _____, _____
- 2) 7.812, 7.082, 8.071, 7.821, 7.128 _____, _____, _____, _____, _____
- 3) 4.9, 4.98, 4.8, 4.989, 4.898 _____, _____, _____, _____, _____
- 4) 9.1, 9.01, 9.101, 9.0101, 9.1101 _____, _____, _____, _____, _____
- 5) 13.131, 1.3131, 131.31, 1.3113, 1.1313 _____, _____, _____, _____, _____
- 6) 3.4115, 3.415, 3.45, 3.41115, 3.4 _____, _____, _____, _____, _____

Decimal Unscramble

Find the larger number in each pair of decimals and write down its corresponding letter.
 Rearrange the letters to form a mathematical word.

- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|------|------|-----|---|---|-----|------|---|---|------|-----|---|---|-----|------|---|---|-----|------|---|---|------|-----|---|---|------|-----|---|---|------|-----|---|---|---|-----|------|---|---|-----|------|---|---|-----|-----|---|---|------|-----|---|---|-----|------|---|---|------|-----|---|---|------|-----|---|
| <p>1)</p> <table style="width: 100%;"> <tr><td>D</td><td>0.09</td><td>0.9</td><td>E</td></tr> <tr><td>X</td><td>0.4</td><td>0.72</td><td>L</td></tr> <tr><td>A</td><td>0.54</td><td>0.5</td><td>U</td></tr> <tr><td>T</td><td>0.6</td><td>0.32</td><td>K</td></tr> <tr><td>I</td><td>0.5</td><td>0.65</td><td>N</td></tr> <tr><td>B</td><td>0.38</td><td>0.7</td><td>I</td></tr> <tr><td>G</td><td>0.43</td><td>0.4</td><td>C</td></tr> <tr><td>A</td><td>0.52</td><td>0.7</td><td>R</td></tr> </table> | D | 0.09 | 0.9 | E | X | 0.4 | 0.72 | L | A | 0.54 | 0.5 | U | T | 0.6 | 0.32 | K | I | 0.5 | 0.65 | N | B | 0.38 | 0.7 | I | G | 0.43 | 0.4 | C | A | 0.52 | 0.7 | R | <p>2)</p> <table style="width: 100%;"> <tr><td>R</td><td>1.5</td><td>1.15</td><td>E</td></tr> <tr><td>D</td><td>2.5</td><td>2.55</td><td>E</td></tr> <tr><td>T</td><td>2.7</td><td>2.8</td><td>T</td></tr> <tr><td>L</td><td>3.13</td><td>3.3</td><td>K</td></tr> <tr><td>A</td><td>4.2</td><td>4.03</td><td>E</td></tr> <tr><td>C</td><td>4.65</td><td>4.7</td><td>B</td></tr> <tr><td>C</td><td>4.63</td><td>4.6</td><td>A</td></tr> </table> | R | 1.5 | 1.15 | E | D | 2.5 | 2.55 | E | T | 2.7 | 2.8 | T | L | 3.13 | 3.3 | K | A | 4.2 | 4.03 | E | C | 4.65 | 4.7 | B | C | 4.63 | 4.6 | A |
| D | 0.09 | 0.9 | E | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| X | 0.4 | 0.72 | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | 0.54 | 0.5 | U | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T | 0.6 | 0.32 | K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| I | 0.5 | 0.65 | N | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B | 0.38 | 0.7 | I | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| G | 0.43 | 0.4 | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | 0.52 | 0.7 | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R | 1.5 | 1.15 | E | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D | 2.5 | 2.55 | E | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T | 2.7 | 2.8 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L | 3.13 | 3.3 | K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | 4.2 | 4.03 | E | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 4.65 | 4.7 | B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 4.63 | 4.6 | A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

U4 – Place Value, Rounding, Estimating and Checking
Rounding
No Calculator Allowed

Section A – round these numbers to the nearest ten

- 1) $57 =$ _____
- 2) $73 =$ _____
- 3) $123 =$ _____
- 4) $125 =$ _____
- 5) $1274 =$ _____

Section B – round these numbers to the nearest hundred

- 1) $124 =$ _____
- 2) $298 =$ _____
- 3) $1297 =$ _____
- 4) $1012 =$ _____
- 5) $12998 =$ _____

Section C – round these decimals to the nearest integer

- 1) $4.3 =$ _____
- 2) $2.8 =$ _____
- 3) $12.43 =$ _____
- 4) $19.55 =$ _____
- 5) $19.05 =$ _____

Section D – round these decimals to one decimal place

- 1) $6.23 =$ _____
- 2) $8.56 =$ _____
- 3) $9.21 =$ _____
- 4) $3.07 =$ _____
- 5) $2.89 =$ _____

U4 – Place Value, Rounding, Estimating and Checking
Rounding
No Calculator Allowed

1) Round these numbers to the nearest whole number.

a) 1.8

b) 3.6

c) 4.5

d) 51.2

e) 0.73

1) The table below shows the time taken by the planets to orbit the Sun once.
 Round the times to one decimal place.

Planet	Time (years)	Rounded
Jupiter	11.86	
Uranus	84.01	
Neptune	164.79	
Saturn	29.46	

2) The table below shows the yearly percentage population growth of five countries
 Round the figures to one decimal place.

Country	Percentage growth (%)	Rounded
USA	0.89	
Bangladesh	2.06	
UK	0.28	
Uganda	3.57	
Sri Lanka	0.98	

4) 292 150 people live in Cardiff.
 What is this to the nearest 100 000?

5) The highest populated country in the world is China,
 with 1 321 281 283 people in June 2007.
 The UK is the 22nd most populated, with 60 764 333 people.

a) What is the population of the UK to the nearest million?

b) One billion is 1 000 000 000.

What is the population of China to the nearest billion?

U4 – Place Value, Rounding, Estimating and Checking
Significant Figures
Calculator Allowed for question 4 only

1. Write each number correct to one significant figure.

a) 27

b) 832

c) 8.12

d) 93

e) 77

f) 13.5

2. Write each number correct to two significant figures.

a) 275

b) 0.03451

c) 8.12

d) 0.956

e) 7.04

f) 7.05

3. Write each number correct to three significant figures.

a) 27589

b) 0.03451

c) 8.1254

d) 0.95621

e) 0.0704124

f) 7.05555

4. Use a calculator to work out the answers and write them down correct to 1 significant figure.

a) 50×23

b) 5.25×7

c) 910×12

d) 9.5×7.3

5.

Find an approximate value of $\frac{41 \times 197}{78}$

You **must** show all your working.

U4 – Place Value, Rounding, Estimating and Checking
Estimating and Approximating Calculations
No Calculator Allowed

Section A

Circle the correct estimate for each of the calculations

3803 – 2698 Choose from: a 11 000, b 110, c 1100

892 + 399 Choose from: a 1200, b 1300, c 1400

1403 – 199 Choose from: a 500, b 1200, c 1300

5706 – 998 Choose from: a 4700, b 4600, c 4800

297 + 598 Choose from: a 700, b 800, c 900

3004 + 2997 Choose from: a 0, b 6000, c 5900

Section B

Estimate the answer to each of the following calculations, you must show your working out.

899 books at £8.95 each

603 boxes of chalk at £0.49

29 m² of carpet at £7.95 per m²

71 bottles of wine at £3.95 each

68 books at £6.10 each

81 rulers at £0.28

19 litres of petrol at 89p per litre

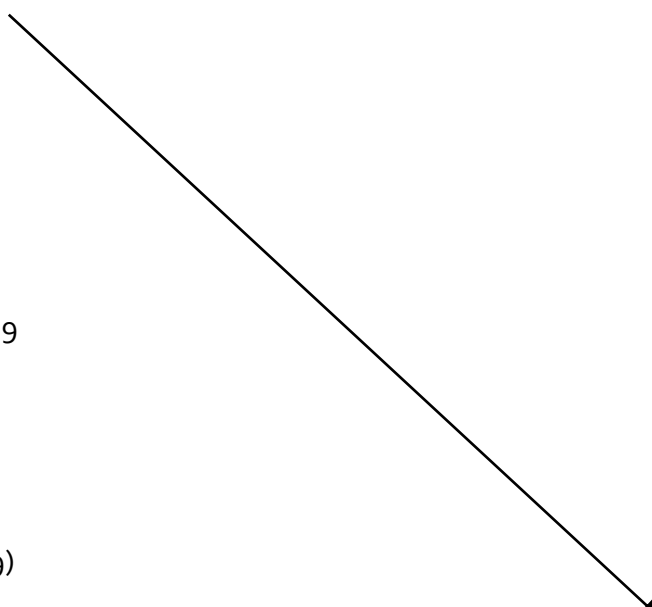
598 chairs at £29.95

U4 – Place Value, Rounding, Estimating and Checking
Estimating
No Calculator Allowed

Match up the questions to the estimated answers. The first one has been done for you.

QUESTIONS

ESTIMATED
ANSWERS

3.92×5.05		8.3
6.9×2.9		3
$30.1 \div 9.91$		21
$\sqrt{32}$		10
$(8.8 + 11.11) \times 4.9$		100
$50 \div 7.21$		12.2
$\sqrt{103}$		5.6
$4.05 \times (6.9 + 2.9)$		40.5
$67 \div 8.12$		20
$\sqrt{150}$		7

Kim buys 71 stamps which cost 19 pence each.

By using suitable approximations, **estimate** the total cost of the stamps.
 You **must** show your working.

Find an approximate value of $\frac{2987}{21 \times 49}$

You **must** show all your working.

U4 – Place Value, Rounding, Estimating and Checking
Estimates and Approximations
No Calculator Allowed

- 1) Anita is painting her bedroom.
 The area of her walls is 93m^2 and each can of paint covers 11m^2 .
 Estimate how many cans of paint she will need.
- 2) Sam goes shopping and buys a t-shirt for £9.99, some socks for £1.49 and a belt for £8.99. The cashier charges him £23.47.
 Estimate the cost of his items and decide if Sam has been overcharged or undercharged. Approximate the difference between the cashier's price and the actual cost.
- 3) To the nearest thousand, the attendance at a recent football match was 45,000.
 What are the most and least number of people that could have attended?

4) The value of π correct to 7 decimal places is 3.1414927

(a) Write the value of π correct to 4 decimal places.

(b) Which value here is closest to the value of π ?

Write down the correct one.

$\frac{179}{57}$	$3\frac{1}{7}$	$\left(\frac{16}{9}\right)^2$	$\frac{355}{113}$
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5) Find an approximate value of $\frac{48.8 \times 5.22}{(10.13)^2}$

You **must** show all your working.

6) Use approximations to estimate the value of $\frac{316 \times 4.03}{0.198}$

You **must** show your working.

7) Use approximations to estimate the value of $\frac{103.2 \times 32.6}{18.7}$

You **must** show your working.

8) Use approximations to estimate the value of $\sqrt{\frac{9.98}{0.203}}$

You **must** show your working.

U4 – Accuracy of Calculations

Bounds

Calculator Allowed

1. Write down the upper and lower bounds of the following measurements:

(a) 121 mm correct to the nearest mm

(b) 345.2 mm correct to the nearest 0.1 mm

(c) 987 cm correct to the nearest cm

(d) 54 km correct to the nearest km

(e) 1023.4 kg correct to the nearest 0.1 kg

2. The length of a rectangle is 30cm, correct to 2 significant figures.
The width of a rectangle is 18cm, correct to 2 significant figures.

- a) Write down the upper bound of the width
- b) Calculate the upper bound for the perimeter of the rectangle

3. The average fuel consumption © of a car, in kilometres per litre, is given by the formula

$$C = d / f$$

Where d is the distance travelled, in kilometres, and f is the fuel used, in litres.

D = 163 correct to 3 significant figures

F = 45.3 correct to 3 significant figures

By considering bounds, work out the value of c to a suitable degree of accuracy.

You must show all your working out and give a reason for your answer.

4. A book weighs 3.2 kg, given to the nearest 100 g.

Find the minimum possible weight of 6 copies of the same book.

5. A sport pitch has a length of 75 metres and a width of 45 metres, correct to the nearest metre.

Write down the least and the greatest possible areas of this pitch.