




GCSE Mathematics

Intermediate Tier

Booklet 5

Decimals

Student's Name			
Lecturer's Name			
Mark	/		
Student Reflection			

Make sure you show your methods and calculations.

Calculators are / are not to be used on this booklet.

Decimals

Place value

It is important that when we work with decimals we are aware of the place value

H T U . t h th

Addition and Subtraction

To ensure that the place value is correct we must line up the decimal points.

Then make them look the same size by adding in 0's. We can then add and subtract as normal. Remembering to put a decimal point in the same place in the answer.

Add $3.58 + 1.434$

$$\begin{array}{r} 3.580 \\ + 1.434 \\ \hline 5.014 \end{array}$$

Subtract $5.4 - 2.37$

$$\begin{array}{r} 5.40 \\ - 2.37 \\ \hline 3.03 \end{array}$$

Dividing A Decimal By A Multiple Of Ten

To divide by 10 we simply move the decimal point one place to the left.
To divide by 100 we move the decimal point two places to the left.
To divide by 1000 we move the decimal point three places to the left.

Examples

1) $1474.3 \div 10 = 147.43$

2) $1474.3 \div 100 = 14.743$

3) $1474.3 \div 1000 = 1.4743$

Multiplying Decimals

Rules:

1. Multiply the numbers ignoring the decimal points
2. Count the number of figures after the decimal point in the question.
3. Give the answer has the same number of figures after the decimal point as you counted in the question.

Example

$$0.2 \times 0.3 = 0.06$$

Division Of Decimals By Whole Numbers

Carry out a long division calculation. Put the decimal point above the decimal point the calculation.

Example

$$0.65 \div 5$$

Solution

$$\begin{array}{r} 0.13 \\ 5 \overline{) 0.65} \end{array}$$

Division Of Decimals By Decimals

Rules:

1. Move the decimal point in the number you are dividing by to the right until the number becomes a whole number.
2. Move the decimal point in the number you are dividing the same number of places to the right.
3. Divide the new numbers.

Example

$$0.65 \div 0.5$$

Solution

Change to $6.5 \div 5$

$$\begin{array}{r} 1.3 \\ 5 \overline{) 6.5} \end{array}$$

1. Answer the following questions without using a calculator.

(a)	$\begin{array}{r} 2 \cdot 5 \ 5 \\ + 3 \cdot 4 \ 1 \\ \hline \end{array}$	(b)	$\begin{array}{r} 3 \ 1 \cdot 0 \ 9 \\ - 2 \ 4 \cdot 7 \ 3 \\ \hline \end{array}$	(c)	$\begin{array}{r} 4 \cdot 2 \ 7 \\ \times \quad 3 \\ \hline \end{array}$	(d)	$\begin{array}{r} 7 \cdot 4 \ 5 \\ \times 0 \cdot 2 \\ \hline \end{array}$

[4]

2. Answer the following questions without using a calculator.

(a) $3 \ 4 \cdot 6 \ 7 + 3 \ 8 \cdot 5$

.....

.....

.....

[1]

(b) $1 \ 4 \cdot 9 \ 7 + 2 \ 4 \cdot 0 \ 5$

.....

.....

.....

[1]

(c) $1 \ 5 \ 7 \cdot 9 + 7 \ 8 \cdot 9 \ 5 \ 4$

.....

.....

.....

[1]

(d) $1 \ 4 \ 5 \ 6 \cdot 9 + 3 \ 7 \cdot 1 \ 8$

.....

.....

.....

[1]

3. In this addition sum, some of the numbers have been replaced by letters.

Write down the value of each letter so that the sum is correct.

$$a \cdot 3 \ 5$$

$$a = \dots\dots\dots$$

$$+ 7 \cdot b \ 8$$

$$b = \dots\dots\dots$$

$$1 \ 2 \cdot 2 \ c$$

$$c = \dots\dots\dots$$

[3]

4. Calculate the answers to the following questions without using a calculator.

(a) $34 \cdot 5 - 10 \cdot 7$

[1]

(b) $28 \cdot 57 - 19 \cdot 99$

[1]

(c) $0 \cdot 984 - 0 \cdot 876$

[1]

(d) $126 \cdot 73 - 23 \cdot 87$

[1]

5. Evaluate the following without using a calculator.

(a) $0 \cdot 5 \times 10$

[1]

(b) $6 \cdot 7 \times 100$

[1]

(c) $2 \cdot 05 \times 10$

[1]

6. Without using a calculator, find the value of the following:

(a) $5 \cdot 35 \times 3 \cdot 4$

[2]

(b) $15 \cdot 84 \times 5 \cdot 3$

[3]

(c) $23 \cdot 78 \times 2 \cdot 4$

[3]

(d) $0 \cdot 4 \times 0 \cdot 2$

[1]

7. Write the following numbers in figures:

(a) forty five point six one

[1]

(b) sixty two point nine seven

[1]

(c) ninety nine point four five

[1]

8. Calculate the following without using a calculator.

(a) $34 \div 10$

.....
.....

[1]

(b) $852 \div 100$

.....
.....

[1]

(c) $12 \cdot 7 \div 10$

.....
.....

[1]

(d) $7 \cdot 91 \div 100$

.....
.....

[1]

(e) $31 \cdot 45 \div 100$

.....
.....

[1]

9. Write the following numbers in words.

(a) $35 \cdot 65$

.....
.....

[1]

(b) $123 \cdot 8$

.....
.....

[1]

(c) $62 \cdot 37$

.....
.....

[1]

10. Use the fact that $86 \times 73 = 6278$ to write down the answers to the following.

(a) $8.6 \times 73 =$

..... [1]

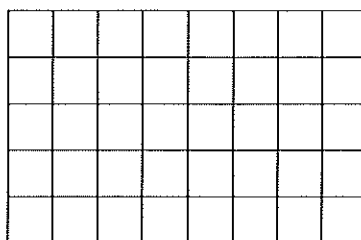
(b) $860 \times 7.3 =$

..... [1]

(a) $6278 \div 73 =$

..... [1]

11. Shade 0.4 of the shape below:



[1]

12. Complete the diagram below by entering figures in the empty boxes.

2.3	\times		$=$	9.2
—		—		
	\times		$=$	
1.6	—	0.9	$=$	

[5]

13. In this subtraction sum, some of the numbers have been replaced by letters. Write down the value of each letter so that the sum is correct.

$$\begin{array}{r} 3x \cdot 65 \\ - 17 \cdot y8 \\ \hline 14 \cdot 5z \end{array}$$

$x =$

$y =$

$z =$

[3]

14. Find the value of each of the following.

(i) 0.2×0.3

[1]

.....

.....

(ii) $6.2 - 3.28$

[1]

.....

.....

.....

15. Find the value of the following.

(i) 0.3×0.4

[1]

.....

.....

(ii) $8.7 - 7.87$

[1]

.....

.....

16.

Use the fact that $54 \times 116 = 6264$ to write down the answers to the following.

(a) $5.4 \times 11.6 =$

.....

[1]

(b) $0.54 \times 116 =$

.....

[1]

(c) $626.4 \div 54 =$

.....

[1]

17. Use the fact that $48 \times 63 = 3024$ to write down answers to the following.

(a) $4.8 \times 6.3 =$

(b) $0.48 \times 630 =$

(c) $3.024 \div 63 =$

18. Use the fact that $52 \times 27 = 1404$ to write down answers to the following.

(a) $5.2 \times 0.27 =$

(b) $2.7 \times 5200 =$

(c) $0.1404 \div 0.27 =$

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