MATHS FIELD GUIDE · GRADE 5

Decimals are place-value units

OPENING PROBLEM

Compare 4.06 and 4.60.

Ones	Tenths	Hundredths
4	0	6
4	6	0

02 Use the place, including the zero
03 Rules and worked cases
04 Weigh the sample
05 Compare the models
06 Move between tenths, money and measurement
07 Check your reasoning

ILLUSTRATED PROBLEM SHEET

Use the place, including the zero

A digit one place to the left is worth ten times as much.

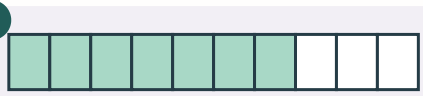
1

Ones	Tenths	Hundredths
4	0	6
4	6	0

Compare 4.06 and 4.60.

The ones match. Six tenths is more than zero tenths, so 4.60 is larger.

2



How many hundredths equal seven tenths?

Seventy. Splitting each tenth into ten parts makes 0.70.

3



What is halfway between 0.4 and 0.5?

0.45. From 0.40 to 0.50 there are ten equal steps of 0.01. Five steps from either end reach 0.45.

4

3.08 + 0.7
↓
3.08 + 0.70
↓
3.78

Why put the added seven under tenths?

It represents seven tenths. The eight hundredths stay unchanged.

0.4 and 0.40
same point.

0.04 and 0.4
tenfold difference.

CHAPTER PROBLEM

Which is greater: 0.9 or 0.86? Explain with units.

0.9. It is ninety hundredths; 0.86 is eighty-six hundredths.

MATHS REFERENCE · GRADE 5

Decimals are place-value units

A decimal writes a number using ones and smaller place-value units.

Each place to the right has one tenth the value of the place before it. Ten hundredths make one tenth.

Cases to recognise

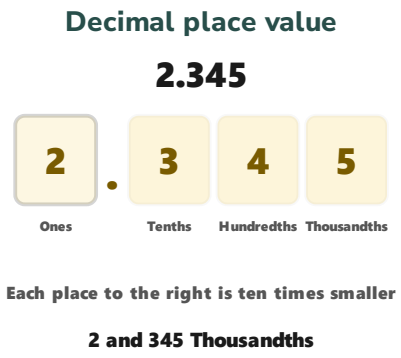
Situation	What to do and why
Round 3.746 to hundredths	The thousandths digit is six. Increase the hundredths to get 3.75.
Compare 0.072 and 0.702	Both have zero wholes. Seven tenths exceeds zero tenths.

Read the model

Read every digit by its place

In 2.345, the digits mean two ones, three tenths, four hundredths and five thousandths.

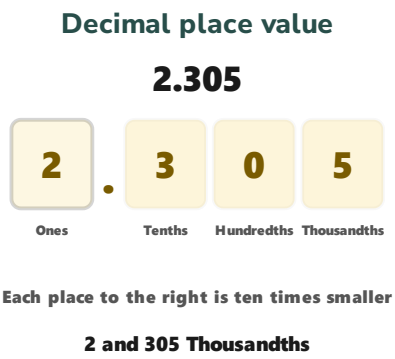
So 2.345 = 2 + 0.3 + 0.04 + 0.005.



Zeros can hold a place

In 2.305, the zero says there are no extra hundredths.

It keeps the 5 in the thousandths place. Removing this zero would change the number to 2.35.



tenth One of ten equal parts of one.
hundredth One of a hundred equal parts of one.
thousandth One of a thousand equal parts of one.
round Replace a number with a nearby value at a chosen place.

₹4.50 + ₹0.75
↓
450p + 75p
↓
₹5.25

Where does the extra rupee come from?

525 paise contains five complete hundreds and 25 paise.

WORKED INVESTIGATION

Weigh the sample

A balance reads 0.406 kg. The zero holds the hundredths place. Four tenths and six thousandths together weigh 406 g.

Look at this part	What it tells you
0.4 kg	400 g
0.006 kg	6 g
0.406 kg	406 g

Work it through

Compare 0.406 and 0.46 by rewriting the second as 0.460. At the hundredths place, zero is smaller than six.

Catch the mistake

Deleting the middle zero changes the mass to 460 g. A trailing zero in 0.4060 has a different job: it adds zero ten-thousandths.

Compare the cases

Different names, same amount

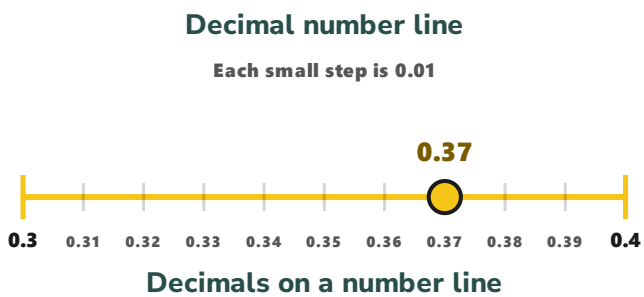
0.6 is six tenths. 0.60 is sixty hundredths.

Ten hundredths make one tenth, so these names have the same value. A zero at the end does not add an amount.

Use a number line

The interval from 0.3 to 0.4 is split into ten equal steps.

Each step is one hundredth. The mark at 0.37 is seven hundredths after 0.30.



Change one condition

Add four grams. The new reading is 0.410 kg because six thousandths and four thousandths make one hundredth.

Length	Cost
1 m	₹12
0.1 m	₹1.20
0.4 m	₹4.80

Why does the shorter piece cost less?

At the same rate four tenths of a metre costs four tenths of ₹12.

DECIMALS ARE PLACE-VALUE UNITS

Compare the models

Compare places, not lengths

0.8 is greater than 0.75 because 0.80 is eighty hundredths, compared with seventy-five.

More written digits do not always mean a greater number.

Round with a named place

To round 2.347 to hundredths, keep 2.34 and inspect the thousandths digit.

Seven thousandths takes it nearer to 2.35 than 2.34, so the rounded value is 2.35.

Keep exact and rounded separate

2.347 is not exactly 2.35. We use ≈ to mean approximately equal.

An estimate is useful for checking or reporting, but it does not replace an exact measurement without saying so.

Explain your reasoning

What is the value of the 7 in 4.072?

Seven hundredths, or 0.07.

Two more worked cases

Situation	Reasoning
How much separates 1.005 and 1.05?	In thousandths, 1,050 − 1,005 = 45, a gap of 0.045.
Which hundredths bracket 2.079?	2.07 < 2.079 < 2.08. It lies one thousandth below 2.08.

₹8.40 ÷ 7
↓
840p ÷ 7
↓
₹1.20

How can you check the share?

Seven shares of 120 paise give 840 paise.

ILLUSTRATED PROBLEM SHEET

Move between tenths, money and measurement

Scale both quantities in a division by the same nonzero factor. In multiplication, track each factor's place value.

1

$$0.3 \times 0.4$$
$$\downarrow$$
$$3 \text{ tenths} \times 4 \text{ tenths}$$
$$\downarrow$$
$$12 \text{ hundredths} = 0.12$$

Which unit does each small product represent?

A tenth of a tenth is a hundredth. Twelve such pieces give 0.12.

2

$$2.4 \div 0.3$$
$$\downarrow$$
$$24 \text{ tenths} \div 3 \text{ tenths}$$
$$\downarrow$$
$$8 \text{ groups}$$

Why can the quotient exceed 2.4?

It counts groups that are smaller than one whole unit.

3

$$4.8 \div 6$$
$$\downarrow$$
$$48 \text{ tenths} \div 6$$
$$\downarrow$$
$$8 \text{ tenths} = 0.8$$

What does eight count in the second line?

Eight tenths per group. Write the decimal unit back into the answer.

4

Change	Start	Result
× 10	0.045	0.45
÷ 10	0.45	0.045

Does the digit 4 change its value?

Yes. Multiplying by ten moves its value from four hundredths to four tenths.

0.05×0.2
0.01.

$0.05 \div 0.2$
0.25.

CHAPTER PROBLEM

Round 3.268 to hundredths. Is the rounded value exact?

3.27. It is an approximation, not the exact original value.

QUESTION BANK · FOLD OR COVER THE RIGHT COLUMN

Check your reasoning

Try the problem	Solution and reasoning
01 What is 0.01 less than 2.00?	1.99. Exchange one whole for ten tenths and a tenth for ten hundredths.
02 Can 0.7 × 0.8 equal 5.6?	No. Both positive factors are below one. The product is 56 hundredths, or 0.56.
03 Which is heavier, 0.509 kg or 0.59 kg, and by how many grams?	590 g exceeds 509 g by 81 g. Align the decimal places before subtracting.
04 Which number rounds to 4.30 to two decimal places, 4.294 or 4.296?	4.296 rounds up to 4.30. The other rounds to 4.29.
05 What does the middle zero do in 6.007?	It records zero hundredths. The seven is seven thousandths.

₹2.50 × 0.6
↓
250p × 6/10
↓
₹1.50

Why does multiplication give a smaller amount?

The factor is six tenths. The product is six tenths of ₹2.50.

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