MATHS FIELD GUIDE · GRADE 5

Add and subtract matching decimal units

OPENING PROBLEM

Why does the shorter piece cost less?

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

02 Keep the decimal point tied to the unit
03 Rules and worked cases
04 Balancing a shopping bill
05 Compare the models
06 Use the place, including the zero
07 Check your reasoning

ILLUSTRATED PROBLEM SHEET

Keep the decimal point tied to the unit

A rupee has one hundred paise. Estimate the size before calculating.

1

₹4.50 + ₹0.75
↓
450p + 75p
↓
₹5.25

Where does the extra rupee come from?

525 paise contains five complete hundreds and 25 paise.

2

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.

3

₹8.40 ÷ 7
↓
840p ÷ 7
↓
₹1.20

How can you check the share?

Seven shares of 120 paise give 840 paise.

4

₹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.

₹0.06
six paise.

₹0.60
sixty paise.

CHAPTER PROBLEM

A jug has 4.5 L. You pour out 1.75 L. How much remains?

2.75 L. Regroup 4.50 before subtracting.

MATHS REFERENCE · GRADE 5

Add and subtract matching decimal units

Decimal addition joins like-sized units. Decimal subtraction finds what remains or the difference.

Ones combine with ones, tenths with tenths, and hundredths with hundredths.

Cases to recognise

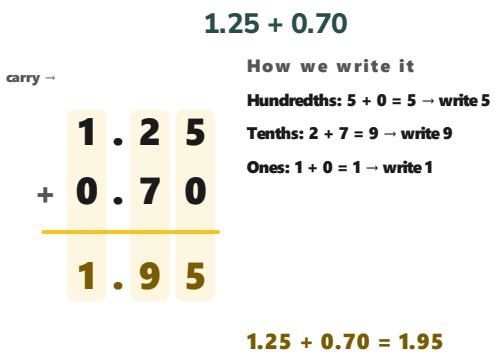
Situation	What to do and why
8.4 + 0.76	Rewrite as 8.40 + 0.76 = 9.16.
10 − 3.87	Count up 0.13 to four, then six to ten: 6.13.

Read the model

Rename before joining

To add 1.25 and 0.7, write seven tenths as seventy hundredths: 0.70.

Then 1.25 + 0.70 = 1.95. Align the decimal points so the place-value columns match.



Column addition with carrying

Why an extra zero is allowed

0.7 and 0.70 have the same value.

The zero helps us display matching columns. It is not an extra tenth or hundredth.

align Put matching place-value units in the same column.
regroup Exchange units without changing the value.
difference How much two amounts differ.

0.3 × 0.4
↓
3 tenths × 4 tenths
↓
12 hundredths = 0.12

Which unit does each small product represent?

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

WORKED INVESTIGATION

Balancing a shopping bill

> Two notebooks cost ₹18.75 and ₹6.80. Align rupees with rupees and paise with paise. Seventy-five plus eighty paise makes ₹1.55.

Look at this part	What it tells you
Whole rupees	₹24
Paise combined	₹1.55
Total	₹25.55

Work it through

Pay ₹30. Count up from ₹25.55 to ₹26 using ₹0.45, then add ₹4. The change is ₹4.45.

Catch the mistake

Lining up the last digits of 6.8 and 18.75 makes eight tenths look like eight hundredths. Write 6.80 first.

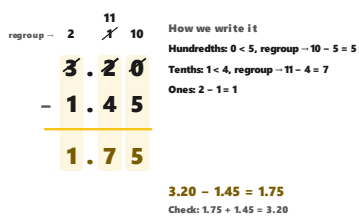
Compare the cases

Regroup when subtracting

For 3.2 − 1.45, write 3.20. Exchange one tenth for ten hundredths.

That gives ten hundredths minus five hundredths. Continue with the remaining units: the difference is 1.75.

3.20 − 1.45



Column subtraction with regrouping

Regrouping preserves the amount

Three ones and two tenths can be renamed as three ones, one tenth and ten hundredths.

The units changed their grouping, not their total value.

Change one condition

A ₹2.50 discount reduces the total to ₹23.05. Check by adding the discount back.

2.4 ÷ 0.3
↓
24 tenths ÷ 3 tenths
↓
8 groups

Why can the quotient exceed 2.4?

It counts groups that are smaller than one whole unit.

ADD AND SUBTRACT MATCHING DECIMAL UNITS

Compare the models

Check the tempting mistake

Aligning the last digits of 0.8 and 0.25 would pair tenths with hundredths.

Rename 0.8 as 0.80. Eighty hundredths plus twenty-five hundredths is 105 hundredths, or 1.05.

Estimate and reverse

1.25 + 0.7 should be near two, not nineteen.

Check subtraction by adding the difference to the amount removed. For 3.20 − 1.45, 1.75 + 1.45 = 3.20.

Give the answer a unit

A ribbon of length 2.4 m joined to 0.35 m makes 2.75 m.

Do not add metres to centimetres without first using matching measurement units.

Explain your reasoning

Calculate 2.6 + 0.48. Explain why you may write 2.60.

3.08. Six tenths is sixty hundredths, so 2.60 and 2.6 have equal value.

Two more worked cases

Situation	Reasoning
A total of 6.2 includes 2.85	The missing part is 6.20 − 2.85 = 3.35.
Check 4.98 + 1.97 mentally	5 + 2 − 0.02 − 0.03 = 6.95.

4.8 ÷ 6
↓
48 tenths ÷ 6
↓
8 tenths = 0.8

What does eight count in the second line?

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

ILLUSTRATED PROBLEM SHEET

Use the place, including the zero

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

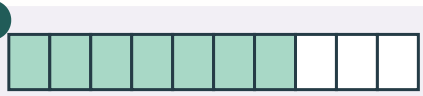
1

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

Why is aligning the last written digits unreliable for decimal addition?

The last digits may represent different units. Align place-value columns instead.

QUESTION BANK · FOLD OR COVER THE RIGHT COLUMN

Check your reasoning

Try the problem	Solution and reasoning
01 ₹10 is shared among four children. Can every share be paid exactly in paise?	Yes. 1000 paise divided by four gives 250 paise each.
02 What is 0.01 less than 2.00?	1.99. Exchange one whole for ten tenths and a tenth for ten hundredths.
03 A pen costs ₹9.90 and a pad ₹12.35. What change comes from ₹25?	The bill is ₹22.25. Add ₹0.75 to reach ₹23 and ₹2 more to reach ₹25, so change is ₹2.75.
04 A 5 m ribbon loses pieces of 1.25 m and 0.85 m. Length left?	Cut pieces total 2.10 m. Subtract to get 2.90 m.
05 Find the missing value in 2.96 + __ = 4.03.	Add 0.04 to reach 3 and 1.03 to reach 4.03. The gap is 1.07.

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.

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