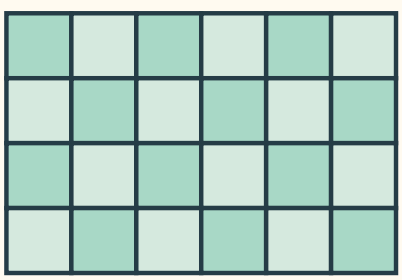
MATHS FIELD GUIDE · GRADE 3

Addition and subtraction are connected

OPENING PROBLEM

Twenty-four counters fill four identical rows. How many per row?



02 Run the operation backwards
03 Rules and worked cases
04 The missing tickets
05 Trade without changing the amount
06 Check your reasoning

ILLUSTRATED PROBLEM SHEET

Run the operation backwards

Begin with the result and undo the last change first.

1

$$? + 18 = 43$$
$$\downarrow$$
$$43 - 18 = 25$$

What number was hidden?

Twenty-five. Adding eighteen to it returns forty-three.

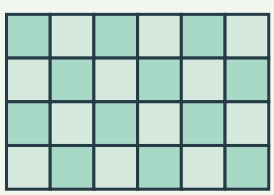
2

$$? - 16 = 27$$
$$\downarrow$$
$$27 + 16 = 43$$

A box lost sixteen and now has twenty-seven. How many at first?

Forty-three. Undo a loss by putting it back.

3



Twenty-four counters fill four identical rows. How many per row?

Six. Four times six gives the original total.

4

$$? \times 3 + 2 = 20$$
$$\downarrow$$
$$20 - 2 = 18$$
$$\downarrow$$
$$18 \div 3 = 6$$

Which change do you undo first?

Remove the final two, then divide by three. Check: three sixes and two make twenty.

□ + 9 = 32
subtract nine: 23.

□ − 9 = 32
add nine: 41.

CHAPTER PROBLEM

How could you check 93 − 57 = 36 using addition?

Add 57 and 36. They total 93, rebuilding the starting whole.

MATHS REFERENCE · GRADE 3

Addition and subtraction are connected

Addition joins parts into a whole. Subtraction can find a missing part or the difference between two amounts.

These are inverse operations: one can undo the other. They describe different relationships within the same whole.

Four cases to recognise

Situation	What to do and why
__ + 27 = 62	Subtract 27 from 62 to recover 35.
74 − __ = 29	The removed amount is 74 − 29 = 45.
__ − 18 = 36	Rebuild the starting total: 36 + 18 = 54.
Check 7 × 6 = 42	42 ÷ 7 returns six and 42 ÷ 6 returns seven.

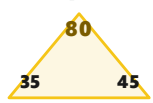
Read the model

Build the idea

Imagine a bar of length 80 split into parts of 35 and 45. The joined parts give 35 + 45 = 80.

If the whole and one part are known, subtraction finds the other: 80 − 35 = 45 or 80 − 45 = 35.

Fact family: 35, 45, 80



Related addition and subtraction facts

35 + 45 = 80	45 + 35 = 80
80 − 35 = 45	80 − 45 = 35

Fact family

Why it works

The two parts still fit the same whole whichever part is missing. This is why related addition and subtraction facts check one another.

The equal sign states a relationship. Both sides must have the same value; it does not just mean “the answer comes next”.

inverse An operation that undoes another.
difference The gap between two quantities.
equation A statement that two values are equal.



Can either side be read first?

Yes. Each row has two.

WORKED INVESTIGATION

The missing tickets

A box holds some tickets. After 18 are added it holds 53. Undo the addition to find the starting number: 53 − 18 = 35.

Look at this part	What it tells you
Start	35
Add 18	53
Remove 18	35

Work it through

Check the subtraction by rebuilding 53: 35 + 10 = 45, then 45 + 8 = 53.

Catch the mistake

Adding 18 to 53 finds a later total after another delivery. It cannot recover the smaller starting pile.

Compare the cases

Follow an example

For 64 − 28, count up from 28: add 2 to reach 30, add 30 to reach 60, then add 4 to reach 64.

The total added is 36. Check: 28 + 36 = 64. The jumps measure the difference.

What changes? What stays true?

Subtraction does not usually allow us to swap the two numbers. 64 − 28 and 28 − 64 describe different directed calculations.

Choose a model that matches the story. Taking away, comparing and finding a missing part can all use subtraction.

Change one condition

If 18 tickets had been sold instead, a final count of 53 would mean there were 71 at the start.

3 + 2
↓
5
↓
4 + 1

Can different additions have the same total?

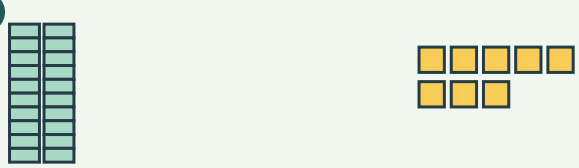
Yes. Both describe five.

ILLUSTRATED PROBLEM SHEET

Trade without changing the amount

One ten can be broken into ten ones, or ten ones can be bundled into a ten.

1



2 tens 8 ones

Add five ones to 28. Where is the new ten?

Eight plus five gives thirteen ones. Trade ten of them. Three tens and three ones make 33.

2



4 tens 2 ones

Take six ones from 42. How can you do it?

Trade one ten. Three tens and twelve ones minus six ones leaves 36.

3

Trade	Tens	Ones
Before	3	10
After	4	0

Did the total rise when the tens column rose?

Both rows mean forty. Ten ones disappeared into the bundle.

4

$$58 + 9$$
$$\downarrow$$
$$58 + 10 - 1$$
$$\downarrow$$
$$67$$

Why subtract one at the end?

Adding ten puts in one extra. Taking it back gives 67.

60 – 1
five tens and nine ones.

59 + 1
regroup to six tens.

CHAPTER PROBLEM

A box has 75 pencils after 18 are added. How many did it have at first?

75 – 18 = 57. Check by adding back the 18 pencils: 57 + 18 = 75.

QUESTION BANK · FOLD OR COVER THE RIGHT COLUMN

Check your reasoning

Try the problem	Solution and reasoning
01 Is 35 − 12 a check for 23 + 12 = 35?	Yes. Removing one part from the total recovers the other.
02 Which is closer to 100, 48 + 49 or 54 + 48?	97 is three away. 102 is two away, so the second sum is closer.
03 A child gives away 16 cards and has 27 left. How many cards were there at first?	Reverse the giveaway: 27 + 16 = 43. Check that 43 − 16 returns 27.
04 A game ends at 81 points after 24 are added. Starting score?	81 − 24 = 57. Check 57 + 24 = 81.
05 After giving away 19 cards, Jo has 38. Did she start with 19 or 57?	She started with 57 because removing 19 leaves 38.



How could adding just one make the rows equal?

Add one to B. Adding one to A would increase the difference.

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