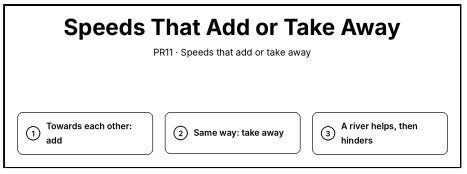
Speeds That Add or Take Away: teacher script

PR11-V1 · PR11 Speeds that add or take away · teachers only. Without a screen, read each Say line and draw each Draw step on the board. About 82 seconds as a video.

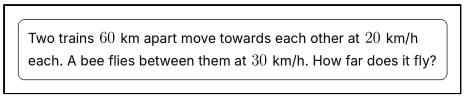
01



Say. Speeds that add or take away. Towards each other, add the speeds. The same way, take them away. And a river helps one way, then hinders the other.

Draw. Write the title “Speeds That Add or Take Away” and the steps: 1. Towards each other: add; 2. Same way: take away; 3. A river helps, then hinders.

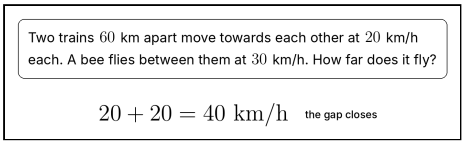
02



Say. Two trains 60 kilometres apart move towards each other at 20 kilometres per hour each. A bee flies between them at 30. How far does it fly before they meet?

Draw. Clear the board. Write “Two trains 60 km apart move towards each other at 20 km/h each. A bee flies between them at 30 km/h. How far does it fly?” in a box at the top.

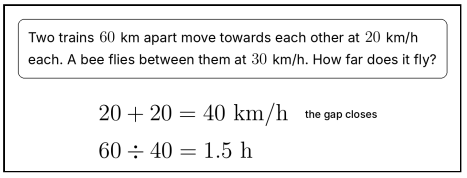
03



Say. The gap closes at 20 plus 20, that is 40 kilometres per hour.

Draw. Write 20 + 20 = 40 km/h on the next line. Beside it, write “the gap closes”.

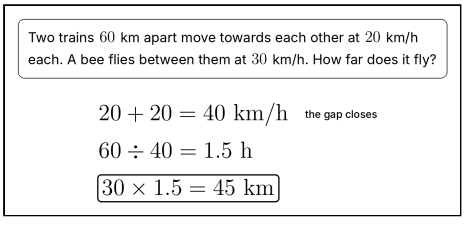
04



Say. So they meet after 1.5 hours.

Draw. Write 60 ÷ 40 = 1.5 h on the next line.

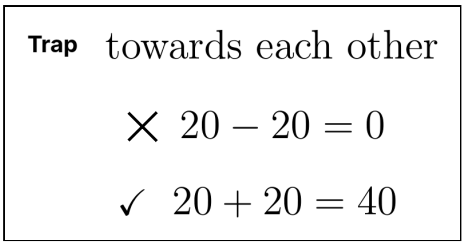
05



Say. The bee flies the whole time: 30 times 1.5 is 45 kilometres.

Draw. Write 30 × 1.5 = 45 km and box it on the next line.

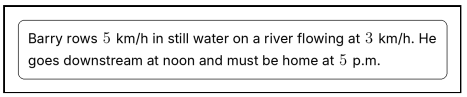
06



Say. Watch for the trap: taking away when they come towards each other. Towards each other, add.

Draw. Clear the board. Write “Trap” and towards each other. Below, write 20 − 20 = 0 and cross it out ×. Then write 20 + 20 = 40 with a tick ✓.

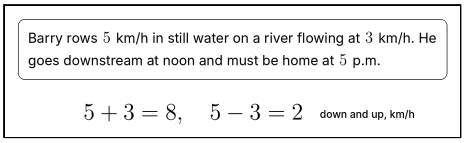
07



Say. Barry rows 5 kilometres per hour in still water, on a river flowing at 3. He goes downstream at noon and must be home at 5 pm. When should he turn around?

Draw. Clear the board. Write “Barry rows 5 km/h in still water on a river flowing at 3 km/h. He goes downstream at noon and must be home at 5 p.m.” in a box at the top.

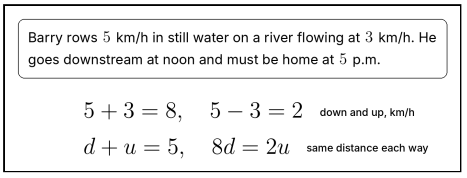
08



Say. He goes 8 downstream and 2 upstream.

Draw. Write 5 + 3 = 8, 5 − 3 = 2 on the next line. Beside it, write “down and up, km/h”.

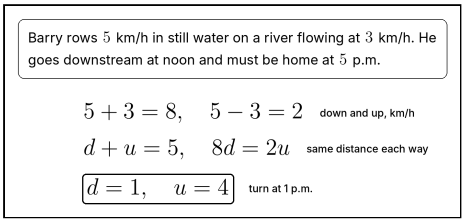
09



Say. The times add to 5 hours, and he covers the same distance each way.

Draw. Write d + u = 5, 8d = 2u on the next line. Beside it, write “same distance each way”.

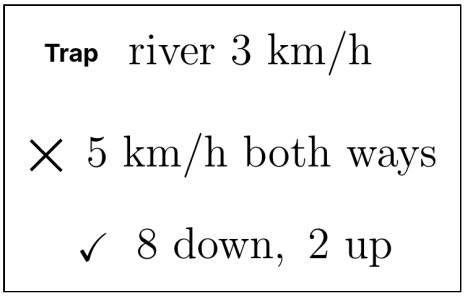
10



Say. So d is 1 and u is 4. He turns around at 1 pm.

Draw. Write d = 1, u = 4 and box it on the next line. Beside it, write “turn at 1 p.m.”.

11



Say. Watch for the second trap: forgetting the current. It helps one way and hinders the other.

Draw. Clear the board. Write “Trap” and river 3 km/h. Below, write 5 km/h both ways and cross it out ×. Then write 8 down,\ 2 up with a tick ✓.

12

Your turn

Towards: add. Same way: take away.
Then d = rt on the gap.

Say. Now it is your turn. Towards each other, add. The same way, take away. Then use distance equals rate times time.

Draw. Point to today’s activity: Towards: add. Same way: take away. Then d = rt on the gap.