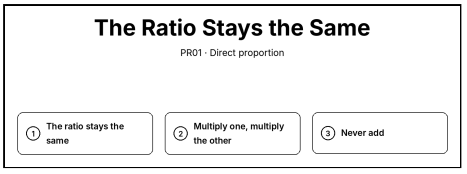
The Ratio Stays the Same: teacher script

PR01-V1 · PR01 Direct proportion · teachers only. Without a screen, read each Say line and draw each Draw step on the board. About 71 seconds as a video.

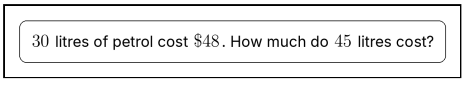
01



Say. Direct proportion. Two quantities are directly proportional when their ratio stays the same. Multiply one, and you multiply the other by the same number. You never add.

Draw. Write the title “The Ratio Stays the Same” and the steps: 1. The ratio stays the same; 2. Multiply one, multiply the other; 3. Never add.

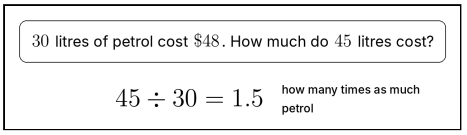
02



Say. 30 litres of petrol cost 48 dollars. How much do 45 litres cost?

Draw. Clear the board. Write “30 litres of petrol cost $48. How much do 45 litres cost?” in a box at the top.

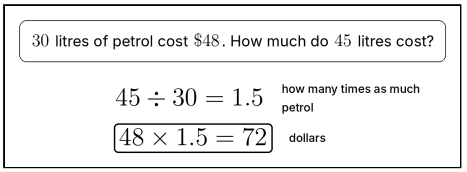
03



Say. 45 litres is 1.5 times 30 litres.

Draw. Write 45 ÷ 30 = 1.5 on the next line. Beside it, write “how many times as much petrol”.

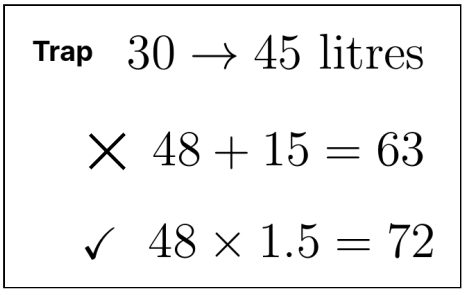
04



Say. So multiply the cost too: 48 times 1.5 is 72 dollars.

Draw. Write 48 × 1.5 = 72 and box it on the next line. Beside it, write “dollars”.

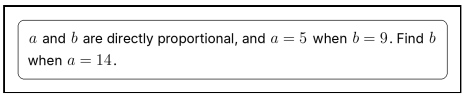
05



Say. Watch for the trap: adding. 15 more litres doesn't mean 15 more dollars. A proportion multiplies.

Draw. Clear the board. Write “Trap” and 30 \to 45 litres. Below, write 48 + 15 = 63 and cross it out ×. Then write 48 × 1.5 = 72 with a tick ✓.

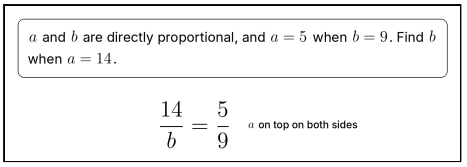
06



Say. a and b are directly proportional, and a is 5 when b is 9. Find b when a is 14.

Draw. Clear the board. Write “a and b are directly proportional, and a = 5 when b = 9. Find b when a = 14.” in a box at the top.

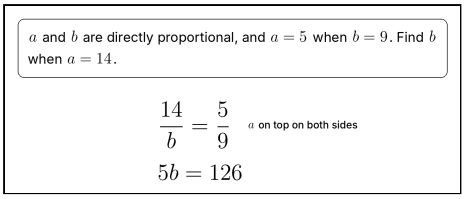
07



Say. The ratio stays the same: a on top on both sides. 14 over b equals 5 over 9.

Draw. Write 14/b = 5/9 on the next line. Beside it, write “a on top on both sides”.

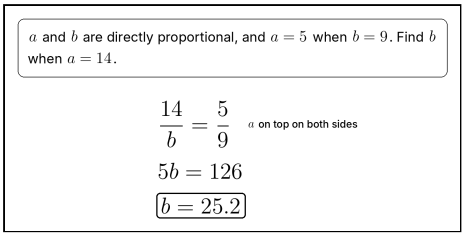
08



Say. Cross-multiply: 5 b equals 126.

Draw. Write 5b = 126 on the next line.

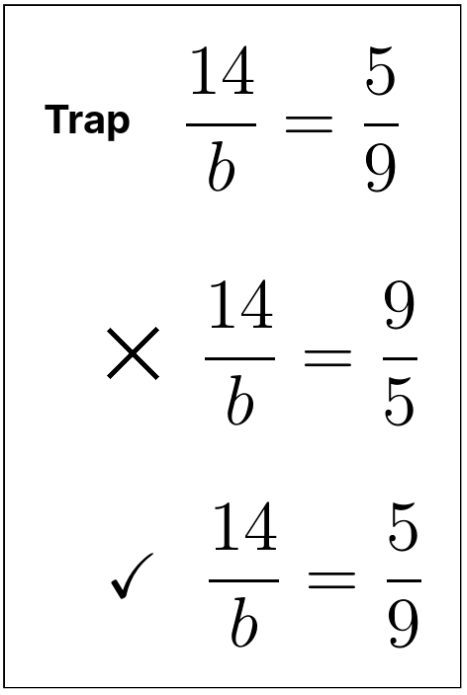
09



Say. So b is 25.2.

Draw. Write b = 25.2 and box it on the next line.

10



Say. Watch for the second trap: one ratio upside down. Keep the same order on both sides.

Draw. Clear the board. Write “Trap” and 14/b = 5/9. Below, write 14/b = 9/5 and cross it out ×. Then write 14/b = 5/9 with a tick ✓.

11

Your turn

The ratio stays the same.

Multiply, never add.

Say. Now it is your turn. The ratio stays the same, so multiply, and never add.

Draw. Point to today’s activity: The ratio stays the same. Multiply, never add.