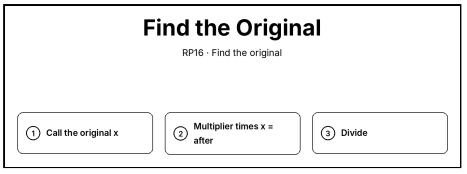
Find the Original: teacher script

RP16-V1 · RP16 Find the original · teachers only. Without a screen, read each Say line and draw each Draw step on the board. About 88 seconds as a video.

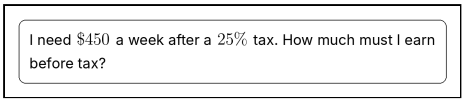
01



Say. Find the original. Call the amount before the change x. The multiplier times x equals the amount after. Divide.

Draw. Write the title “Find the Original” and the steps: 1. Call the original x; 2. Multiplier times x = after; 3. Divide.

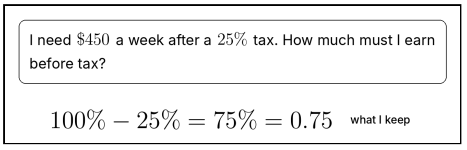
02



Say. I need 450 dollars a week after a 25 percent tax. How much must I earn before tax?

Draw. Clear the board. Write “I need $450 a week after a 25\% tax. How much must I earn before tax?” in a box at the top.

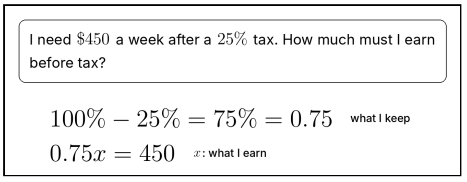
03



Say. After a 25 percent tax, I keep 75 percent, that is 0.75.

Draw. Write 100\% − 25\% = 75\% = 0.75 on the next line. Beside it, write “what I keep”.

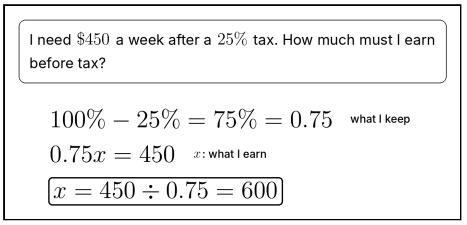
04



Say. Call what I earn x. Then 0.75 x equals 450.

Draw. Write 0.75x = 450 on the next line. Beside it, write “x: what I earn”.

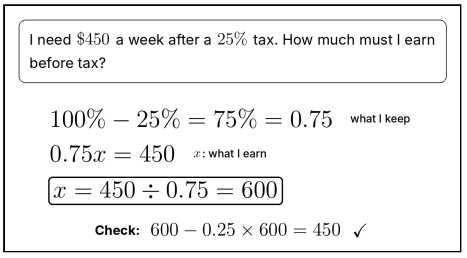
05



Say. Divide by 0.75: x is 600 dollars.

Draw. Write x = 450 ÷ 0.75 = 600 and box it on the next line.

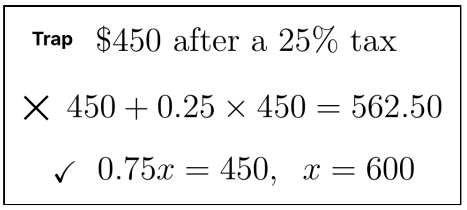
06



Say. Check: the tax is 150 dollars, and 600 minus 150 is 450.

Draw. Below, write “Check: 600 − 0.25 × 600 = 450” and tick it ✓.

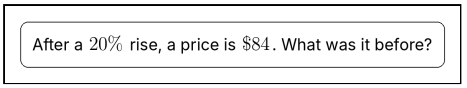
07



Say. Watch for the trap: taking the percent of the new amount. The tax is 25 percent of what I earn, not of 450.

Draw. Clear the board. Write “Trap” and $450 after a 25\% tax. Below, write 450 + 0.25 × 450 = 562.50 and cross it out ×. Then write 0.75x = 450, x = 600 with a tick ✓.

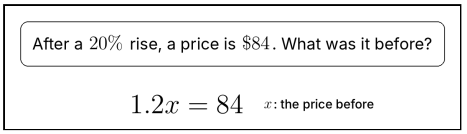
08



Say. After a 20 percent rise, a price is 84 dollars. What was it before?

Draw. Clear the board. Write “After a 20\% rise, a price is $84. What was it before?” in a box at the top.

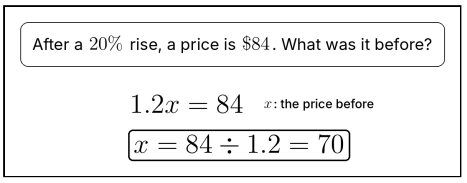
09



Say. Call the price before x. A 20 percent rise multiplies by 1.2, so 1.2 x equals 84.

Draw. Write 1.2x = 84 on the next line. Beside it, write “x: the price before”.

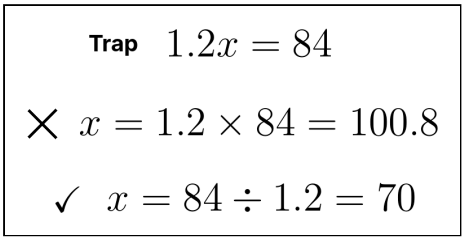
10



Say. Divide by 1.2: the price was 70 dollars.

Draw. Write x = 84 ÷ 1.2 = 70 and box it on the next line.

11



Say. Watch for the trap: multiplying by the multiplier. That raises the price again. To undo times 1.2, divide by 1.2.

Draw. Clear the board. Write “Trap” and 1.2x = 84. Below, write x = 1.2 × 84 = 100.8 and cross it out ×. Then write x = 84 ÷ 1.2 = 70 with a tick ✓.

12



Say. Now it is your turn. Write multiplier times original equals new, and divide by the multiplier.

Draw. Point to today’s activity: Multiplier times original = new: divide by the multiplier.