Find the Original

RP16-V1 · storyboard · RP16 Find the original. Read each picture with its sentences.

Picture 1

I need $\$450$ a week after a 25% tax. How much must I earn before tax?

$$100\% - 25\% = 75\% = 0.75$$ what I keep

$$0.75x = 450$$ x: what I earn

$$\boxed{x = 450 \div 0.75 = 600}$$

Check: $600 - 0.25 \times 600 = 450$ ✓

1. I need 450 dollars a week after a 25 percent tax.
2. How much must I earn before tax?
3. After a 25 percent tax, I keep 75 percent, that is 0.75.
4. Call what I earn x.
5. Then 0.75 x equals 450.
6. Divide by 0.75: x is 600 dollars.
7. Check: the tax is 150 dollars, and 600 minus 150 is 450.

Picture 2

Trap $\$450$ after a 25% tax

$$\times\ 450 + 0.25 \times 450 = 562.50$$

$$\checkmark\ \ 0.75x = 450, \quad x = 600$$

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

Picture 3

After a 20% rise, a price is $\$84$. What was it before?

$$1.2x = 84 \quad x\text{: the price before}$$

$$\boxed{x = 84 \div 1.2 = 70}$$

10. After a 20 percent rise, a price is 84 dollars.
11. What was it before?
12. Call the price before x.
13. A 20 percent rise multiplies by 1.2, so 1.2 x equals 84.
14. Divide by 1.2: the price was 70 dollars.

Picture 4

Trap $1.2x = 84$

$\times\ x = 1.2 \times 84 = 100.8$

$\checkmark\ \ x = 84 \div 1.2 = 70$

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