# Up or Down by a Percent

RP15-V1 · storyboard · RP15 Increase or decrease by a percent. Read each picture with its sentences.

**Picture 1**

Increase $24$ by $75\%$.

$$24 + 0.75 \times 24 = 24 + 18 = 42$$ add the change

$$100\% + 75\% = 175\% = 1.75$$ the multiplier

$$\boxed{24 \times 1.75 = 42}$$

1. Increase 24 by 75 percent.
2. Add the change: 75 percent of 24 is 18, and 24 plus 18 is 42.
3. Or in one step: 100 percent plus 75 percent is 175 percent, that is 1.75.
4. 24 times 1.75 is 42, the same answer.

**Picture 2**

**Trap** $24$ increased by $75\%$

$$\times\ 0.75 \times 24 = 18$$

$$\checkmark\ \ 1.75 \times 24 = 42$$

5. Watch for the trap: giving only the change.
6. 18 is the increase.
7. Keep the whole too: 42.

**Picture 3**

Increase $42$ by $120\%$.

$100\% + 120\% = 220\% = 2.2$ the multiplier

$$\boxed{42 \times 2.2 = 92.4}$$

8. Increase 42 by 120 percent.
9. 100 percent plus 120 percent is 220 percent, so the multiplier is 2.2.
10. 42 times 2.2 is 92.4.

**Picture 4**

**Trap** $\text{up } 120\%$

$\times \quad \times 1.2$

$\checkmark \quad \times 2.2$

11. Watch for the trap: the wrong multiplier.
12. Times 1.2 is only a 20 percent rise.
13. A 120 percent rise is times 2.2.

**Picture 5**

Decrease $60$ by $40\%$.

$$100\% - 40\% = 60\% = 0.6$$ what is left

$$\boxed{60 \times 0.6 = 36}$$

14. Decrease 60 by 40 percent.
15. A decrease leaves the rest.
16. 100 percent minus 40 percent is 60 percent, that is what is left: 0.6.
17. 60 times 0.6 is 36.