PERCENTAGES PART 6 OF 8 · AGES 11–16

Common Percentage Mistakes

Six slips that catch students and adults alike, each with the wrong working, the right working and the reason.

1 Dividing by the new amount

WRONG

~~A price goes from 50 to 60. 10 ÷ 60 × 100 ≈ 16.7%, so it rose by 16.7%.~~

RIGHT

10 ÷ 50 × 100 = 20%, so the price rose by 20%.

A percentage change is always compared with the value before the change, so the original goes on the bottom.

2 Adding successive percentages

WRONG

~~Up 20%, then up 30%: 20% + 30% = 50% increase.~~

RIGHT

1.2 × 1.3 = 1.56, so a 56% increase overall.

The second rise is 30% of the new, bigger amount, not of the original. Multiply the multipliers instead of adding the percentages.

3 50% off, then 50% off, is not free

WRONG

~~50% + 50% = 100% off, so the item is free.~~

RIGHT

0.5 × 0.5 = 0.25: you pay 25% of the price, a 75% discount.

The second 50% comes off the already halved price. A price of 80 drops to 40, then to 20.

4 Reversing a percentage the wrong way

WRONG

~~After a 20% rise a price is 72. Take 20% off: 72 × 0.8 = 57.60.~~

RIGHT

72 is 120% of the original, so 72 ÷ 1.2 = 60.

The 20% was 20% of the original price, not of 72. Divide by the multiplier to undo a change, then check: 60 × 1.2 = 72.

5 Comparing percentages of different totals

WRONG

~~60% of class A passed and 50% of class B passed, so more students passed in A.~~

RIGHT

Class A: 60% of 20 = 12.
Class B: 50% of 40 = 20.
More passed in B.

A percentage gives the share, not the number. A bigger share of a smaller group can be fewer people.

6 A fall of more than 100%

WRONG

~~The price of a ticket fell by 150%.~~

RIGHT

A fall of 100% takes a price to zero, so a price can fall by at most 100%.

Increases have no upper limit, but you cannot take away more than all of something. A '150% fall' usually means someone divided by the new value.

Ask: a percentage of what?

Before you calculate, say what the 100% is: the original price, the new price or the whole group. Most percentage mistakes come from using the wrong one.

NEXT IN THE SERIES
7. Percentages in Everyday Life: 8 Real Examples

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