Tax, Tip and Discount

7th Grade

Three names for the same multiplication.

Add a percentage by multiplying by (1 + rate). Take one off by multiplying by (1 – rate).

$$\text{new} = \text{original} \times (1 \pm \text{rate})$$

£25 plus 8% tax — **£27.00**
25 × 1.08.

£46 bill, 18% tip — **£54.28**
46 × 1.18.

£60 coat, 25% off — **£45.00**
60 × 0.75.

30% off, then 10% more off — **× 0.7 × 0.9 = 0.63**
Not 40% off — it is 37% off.

THE COMMON MISTAKE

× 30% off then 10% off = 40% off

✓ it is 37% off

The second discount applies to the already-reduced price, not the original.

Simple interest: I = P × r × t. Principal, rate, time — all in matching units.