

Percentages

Essential information

Percentage the part out of a hundred.

For example, 3% is 3 parts out of 100 = $\frac{3}{100}$

Equivalence of percentages, fractions and decimals:
see examples shown in the table opposite

Fraction	Decimal	Percentage
$\frac{1}{10}$	0.1	10%
$\frac{1}{8}$	0.125	12.5%
$\frac{1}{5}$	0.2	20%
$\frac{1}{4}$	0.25	25%
$\frac{1}{3}$	0. $\dot{3}$	$33\frac{1}{3}\%$
$\frac{1}{2}$	0.5	50%
$\frac{2}{3}$	0. $\dot{6}$	$66\frac{2}{3}\%$
$\frac{3}{4}$	0.75	75%
1	1.0	100%

Percentage increase (or decrease) in a quantity is

$$\left(\frac{\text{actual increase (or decrease)}}{\text{initial value}} \times 100 \right) \%$$

Compound interest: when the interest each year is added to the value of the account

Value of investment: value of investment A is given by

$$A_n = A_0 \left(1 + \frac{r}{100} \right)^n$$

after n years at $r\%$ interest added yearly with A_0 the original value invested

Depreciation: the rate at which the value of a commodity (e.g. boat, car) decreases over time

Reverse percentage problems in which you find the original value (e.g. price) given the percentage increase/decrease and the current value after the increase/decrease. These can be solved using the equation

$$\text{price} = \text{original cost} \times \left(1 + \frac{r}{100} \right)$$