

ARITHMETIC FORMULAS

ADDITION

Addition: $a + b$

Subtraction: $a - b$

Multiplication: $a \times b$

Division: $a \div b$

Average: $\frac{a + b + c + \dots}{n}$

Percentage: $\frac{\text{Part}}{\text{Total}} \times 100$

PROFIT

Profit: $SP - CP$

Loss: $CP - SP$

Profit %: $\frac{\text{Profit}}{CP} \times 100$

Loss %: $\frac{\text{Loss}}{CP} \times 100$

Discount: $MP - SP$

Discount %: $\frac{\text{Discount}}{MP} \times 100$

SQUARE

Square: a^2

Cube: a^3

Square Root: \sqrt{a}

Cube Root: $\sqrt[3]{a}$

Fraction Addition:

$$\frac{a}{b} + \frac{c}{d} = \frac{ad + bc}{bd}$$

Fraction Subtraction:

$$\frac{a}{b} - \frac{c}{d} = \frac{ad - bc}{bd}$$

PERCENTAGE INCREASE

Percentage Increase:

$$\frac{\text{New} - \text{Old}}{\text{Old}} \times 100$$

Percentage Decrease:

$$\frac{\text{Old} - \text{New}}{\text{Old}} \times 100$$

Ratio: $a : b = \frac{a}{b}$

Proportion: $\frac{a}{b} = \frac{c}{d}$

Simple Interest: $\frac{P \times R \times T}{100}$

Compound Interest: $P \left(1 + \frac{R}{100}\right)^T$

SPEED

Speed: $\frac{\text{Distance}}{\text{Time}}$

Time: $\frac{\text{Distance}}{\text{Speed}}$

Distance: $\text{Speed} \times \text{Time}$

Work: $\text{Work} = \text{Rate} \times \text{Time}$

LCM: $\frac{a \times b}{\text{GCD}}$

HCF/GCD: Largest common factor

FRACTION MULTIPLICATION

Fraction Multiplication:

$$\frac{a}{b} \times \frac{c}{d} = \frac{ac}{bd}$$

Fraction Division:

$$\frac{a}{b} \div \frac{c}{d} = \frac{ad}{bc}$$