Geometry Formulas for Class 8

To recall, geometric shapes are of two types which are 2D shapes and 3D shapes (or solid shapes). The list for all the 2D and 3D geometric shapes are:

Geometry Shapes Formulas for Solid Shapes:

Name of the Solid	Lateral / Curved Surface Area	Total Surface Area	Volume
Cuboid	$2h(l+b)$	$2(lb+bh+hl)$	$l \times b \times h$
Cube	$4a^2$	$6a^2$	a^3
Right Prism	Perimeter of Base × Height	Lateral Surface Area + 2(Area of One End)	Area of Base × Height
Right Circular Cylinder	$2(\pi \times r \times h)$	$2\pi r(r+h)$	$\pi r^2 h$
Right Pyramid	½ (Perimeter of Base × Slant Height)	Lateral Surface Area + Area of the Base	⅓ (Area of the Base) × Height
Right Circular Cone	$\pi r l$	$\pi r(l+r)$	⅓ $(\pi r^2 h)$
Sphere	$4\pi r^2$	$4\pi r^2$	4/3 (πr^3)
Hemisphere	$2\pi r^2$	$3\pi r^2$	⅔ (πr^3)

Geometry Shapes Formulas for 2D Shapes:

Geometric Area	Geometric Area Formula
Square	a^2
Rectangle	$a \times b$
Circle	πr^2
Ellipse	$\pi r_1 r_2$
Triangle	$\frac{1}{2}(b \times h)$

Algebra Formulas for Class 8

Some important 8th class formulas related to Algebra are:

Algebraic Identities For Class 8
$(a + b)^2 = a^2 + 2ab + b^2$
$(a - b)^2 = a^2 - 2ab + b^2$
$(a + b)(a - b) = a^2 - b^2$

Algebraic Identities For Class 8
$(x + a)(x + b) = x^2 + (a + b)x + ab$
$(x + a)(x - b) = x^2 + (a - b)x - ab$
$(x - a)(x + b) = x^2 + (b - a)x - ab$
$(x - a)(x - b) = x^2 - (a + b)x + ab$
$(a + b)^3 = a^3 + b^3 + 3ab(a + b)$
$(a - b)^3 = a^3 - b^3 - 3ab(a - b)$

Maths Formulas For Class 8 Comparing Quantities

Discount Formulas

Discount is the reduction in the value induced on the Marked Price (MP).

Discount = Marked Price – Sale Price

Discount = Discount % of the Marked Price

The additional expenses that we make after buying a product are called the Overhead expenses. These are included in the Cost Price (CP) of that specific product.

Cost Price = Purchase Price + Overhead Expenses

GST (Goods and Service Tax) is computed typically on the supply of the goods.

Tax = Tax % of the Bill Amount.

Compound Interest Formulas

Compound Interest (CI) is the amount of interest that is compounded on the basis of the previous year's amount.

Formula For Compound Interest Compounded Annually: $A = P(1+\frac{R}{100})^t$

In which,

P = Principal,

r = Rate of Interest, and

t = Time Period

Formula For Compound Interest Compounded Half Yearly: $A = P(1+\frac{R}{200})^{2t}$

R/2 = Half-yearly Rate,

2t = Number of Half-Years

Unitary Method For Comparing Quantities

The unitary method is one of the most effective techniques to solve problems on ratio, proportion and percentage (s). Under this method, we first find the value of one unit and then find the value of the number of units needed. Thus, the short unitary method consists of the following two steps:

Step 1 = Identify the value of one unit.

Step 2 = Evaluate the value of the number of units needed.

Percentages

Percentages are methods to compare quantities. They are numerators of fractions with denominator 100 or it generally implies per 100 values. The percent is basically extracted from the Latin term 'per centum' stating 'per hundred'. It is represented by the symbol %. For example 1% means 1/100=

.01. We can use either unitary method or we need to convert the fraction to an equivalent fraction with denominator 100.

Important Formulas of Comparing Quantities Class 8 NCERT

Cost Price = Selling Price – Profit

Cost Price = Selling Price + Loss

Selling Price = Cost Price + Profit

Selling Price = Cost Price – Loss

Profit (P) = Selling Price - Cost Price

Loss = Cost Price - Selling Price

Profit % = 100

Loss % = 100

Discount (D) = Marked Price (M.P.) – Selling price (S.P)

Discount % =   100

Net Price = Selling Price = Marked Price – Discount

Important Sales Tax Formulas:-

Bill Amount = Cost of commodity + Sales tax

Value added tax (VAT) = Tax charged – Tax paid.

Value added tax = Tax % (Selling Price – Cost Price)

Solved Examples

Example 1:

A sum of Rs. 20,000 is borrowed by Mr Mehra at an interest rate of 10% per annum for 2 years. Calculate the simple interest on this sum and the amount to be paid by Mr Mehra at the end of 2 years.

Solution:-

On Rs. 100, interest charged for 1 year is 10%.

So, on Rs. 10,000, interest charged = 2000

= 2500 Interest for 2 years

= 2000 × 2

= 4000

Amount to be paid by Mr Mehra at the end of 2 years

= Principal Amount + Interest

= 20000 + 4000

= 24000

Example2:

A woman purchases a handbag for Rs. 5000 and later sells it at a loss of 20%. What is the selling price of the handbag?

Solution:-

C.P of the handbag = Rs.5000

Loss percentage = 20%

As we are already aware, Loss percentage = (Loss/Cost Price) x 100

20 = (loss/5000) x 100

Therefore, Loss = 1000 rs.

As we know,

Loss = CP – SP

therefore, SP = CP – Loss

= 5000 – 1000

Selling Price = R.4000/-