

Important Facts and Formulae

1. FACTORS AND MULTIPLES: If a number 'a' divides another number 'b' exactly, then 'a' is a factor of 'b'. In this case, 'b' is called a multiple of 'a'.

Ex. 3, 6, 9, ----

2. HCF: The HCF of two or more than two numbers is the greatest number that divides each of them exactly.

Ex. HCF of 36, 72 = 36

3. LCM: The least number which is exactly divisible by each one of the given numbers is called their LCM

Ex. LCM of 87 and 145

$$87 = 3 \times 29$$

$$145 = 5 \times 29$$

$$\text{LCM} = 3 \times 5 \times 29 = 435$$

4. Product of two numbers = HCF × LCM

5. HCF and LCM of fractions:

$$\text{HCF} = \frac{\text{HCF of Numerators}}{\text{LCM of Denominators}} = \frac{2,3,6}{4,8,2} = \frac{1}{8}$$

$$\text{LCM} = \frac{\text{LCM of Numerators}}{\text{HCF of Denominators}} = \frac{2,3,6}{4,8,2} = \frac{6}{2}$$

6. Decimal fraction:- Fraction in which denominators are power of 10 are known as decimal fractions

Ex. $\frac{1}{10} = 1$ tenth, $\frac{1}{100} = 1$ hundredth

7. Recurring Decimal: If in a decimal fraction, a figure or a set of figure is repeated continuously, then such a number is called a recurring decimal.

Ex. $\frac{1}{3} = 0.333$, $\frac{22}{7} = 3.\overline{142857}$

8. Basic formulae:

(a) $(a+b)(a-b) = (a^2 - b^2)$

(b) $(a-b)^2 = a^2 + b^2 - 2ab$

(c) $(a+b)^2 = a^2 + b^2 + 2ab$

(d) $(a+b+c)^2 = a^2 + b^2 + c^2 + 2(ab+bc+ca)$

(e) $(a^3 + b^3) = (a+b)(a^2 + b^2 - ab)$

(f) $(a^3 - b^3) = (a-b)(a^2 + b^2 + ab)$

(g) $(a^3 + b^3 + c^3 - 3abc) = (a+b+c)(a^2 + b^2 + c^2 - ab - bc - ca)$

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(h) When $a+b+c = 0$, then $a^3+b^3+c^3= 3abc$

(i) $(a+b)^2+(a-b)^2= 2(a^2+b^2)$

(j) $(a-b)^3 = a^3-b^3-3ab(a-b)$

(k) $(a+b)^2-(a-b)^2 = 4ab$

9. BODMAS Rule: The rule depicts the correct sequence in which operations are to be executed, so as to find out the value of given expression.

Ex. 'B' for Bracket, 'O' for of, 'D' for Division, 'M' for Multiplication, 'A' or Addition and 'S' for Subtraction.

10. Square Roots: If $x^2=y$, we say that the square root of y is x , and $\sqrt{y}=x$

Ex. $\sqrt{9} = 3$, $\sqrt{169} = 13$

