

A) Rate of Growth & Depreciation.

NOTE 1) When value or population increases,

$$V_a = V_0 \left(1 + \frac{R}{100}\right)^n$$

V_a = final value
 V_0 = original value

2) When value or population decreases,

$$V_d = V_0 \left(1 - \frac{R}{100}\right)^n$$

V_d = final value
 V_0 = original value.

Q. 1. A the population of a town increases by 20% every year. If its present population is 432000, find (i) its population after 2 years

ii) " " 2 years ago.

[Am. (i) 622080, (ii) 300,000]

Q. 2. A machine depreciates every year at the rate of 20% of its value at the ~~beginning~~ beginning of the year. The machine was purchased for ₹500000. Find its price after 3 yrs.

[Am. 258000]

B) Factorisation [using $(a)^n - (b)^n = (a+b)(a-b)$]

1) $\frac{1}{64}a^3 - 25$, 2) $2.25a^2 - b^2$, 3) $x^8 - 625$

4) $4(a+b)^2 - 9(a-b)^2$, 5) $8 - 50x^2y^2$.

6) $9 - (x-y)^2$, 7) $20 - 45(a+b)^2$, 8) $(9+9)^2 - (21)^2$

[Am. 1) $\left(\frac{a}{8} + 5\right)\left(\frac{a}{8} - 5\right)$, 2) $(1.5a + b)(1.5a - b)$

3) $(x^4 + 25)(x + 5)(x - 5)$, 4) $(5a - b)(-a + 5b)$, 5) $2(2 + 5xy)(2 - 5xy)$

6) $(3 + x - y)(3 - x + y)$, 7) $5(2 + 3a + 3b)(2 - 3a - 3b)$, 8) 958000.]