Related Questions with Solutions

Questions

Quetion: 01

If $\sqrt[x]{a} = \sqrt[y]{b} = \sqrt[z]{c}$ and if a, b, c are in G.P., then

A. x, y, z are in A.P.

B. x, y, z are in G.P.

C. $x + z = 2y$

D. $y^2 = xz$

Solutions

Solution: 01

Q a, b, c are in G.P.

$\therefore$ log a, log b, log c, are in A.P.

$\Rightarrow$ 2 log b = log a + log c ...[i]

Given $\sqrt[x]{a} = \sqrt[y]{b} = \sqrt[z]{c}$

$\Rightarrow a^{1/x} = b^{1/y} = c^{1/z}$

$\Rightarrow \quad \dfrac{1}{x}\log a = \dfrac{1}{y}\log b = \dfrac{1}{z}\log c = k(\text{ let })$

$\therefore$ log a = kx, log b = ky, log c = kz ...[ii]

From [i] and [ii] we get

2ky = kx + kz, $k \neq 0$

$\Rightarrow$ 2y = x + z

Hence x, y, z are in A.P.

Correct Options

Answer:01

Correct Options: A, C