

Let GM (geometric mean) of 8th & 9th terms of a geometric progression (whose no. of terms is 16) is  $\sqrt{2}$ , then product of terms of the GP is

Solution:

$$\therefore \text{GM of 8th \& 9th term} = \sqrt{2}$$

$$\Rightarrow \sqrt{2} = \sqrt{t_8 \cdot t_9} = a \cdot r^7 \cdot a r^8 = 2$$

$$\Rightarrow a^2 r^{15} = 2$$

$$\text{Product of terms} = t_1 \cdot t_2 \cdot t_3 \cdot \dots \cdot t_{16}$$

$$= a^{16} r^{1+2+3+\dots+15} = a^{16} r^{120}$$

$$= (a^2 r^{15})^8 = 2^8$$