



Solutions Of Geometric Progressions Ex 20.1 Q 15

Let a be the first term

then $a = -3$

Now we have

$$\begin{aligned}a_4 &= (a_2)^2 \\ \Rightarrow ar^3 &= (ar)^2 \\ \Rightarrow ar^3 &= a^2r^2 \\ \Rightarrow r &= a = -3\end{aligned}$$

$$\therefore a_7 = ar^6 = (-3)^7 = -2187$$

Solutions Of Geometric Progressions Ex 20.1 Q 16

Let the first term is a and the common ratio is r .

Then

$$ar^2 = 24 \dots\dots (1)$$

$$\text{and } ar^5 = 192 \dots\dots (2)$$

(2) \div (1), we get

$$\frac{ar^5}{ar^2} = \frac{192}{24}$$

$$r^3 = 8$$

$$r = 2$$

Now

$$ar^2 = 24$$

$$a \cdot 2^2 = 24$$

$$a = 6$$

Thus the 10th term will be: $ar^9 = 6 \cdot 2^9 = 3072$

Solutions Of Geometric Progressions Ex 20.1 Q 17

$$\text{nth term of GP} = ar^{n-1}$$

$$p\text{th term} = q = ar^{p-1}$$

$$q\text{th term} = p = ar^{q-1}$$

$$\frac{q}{p} = r^{p-q}$$

$$r = \left(\frac{q}{p}\right)^{\frac{1}{p-q}}$$

$$a = p\left(\frac{p}{q}\right)^{\frac{1-q}{p-q}}$$

$$p+q \text{ th term} = p\left(\frac{q}{p}\right)^{\frac{1-q}{p-q}}\left(\frac{q}{p}\right)^{\frac{p+q-1}{p-q}}$$

$$= p\left(\frac{q}{p}\right)^{\frac{1-q+p+q-1}{p-q}}$$

$$= p\left(\frac{q}{p}\right)^{\frac{p}{p-q}}$$

$$= \frac{q^{\frac{p}{p-q}}}{p^{\frac{p}{p-q}-1}}$$

$$= \frac{q^{\frac{p}{p-q}}}{p^{\frac{q}{p-q}}}$$

$$= \left(\frac{q^p}{p^q}\right)^{\frac{1}{p-q}}$$

***** END *****