

## Sequence and Series - Class XI

### Related Questions with Solutions

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#### Questions

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##### Question: 01

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If the first 3 consecutive terms of a geometrical progression are the real roots of the equation  $2x^3 - 19x^2 + 57x - 54 = 0$  find the sum to infinite number of terms of G.P.

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#### Solutions

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##### Solution: 01

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Let  $\frac{a}{r}, a, ar$  be the first 3 terms are in G.P.

$$2x^3 - 19x^2 + 57x - 54 = 0 \quad \left( \frac{a}{r}, a, ar \text{ are its roots} \right)$$

$$\frac{a}{r} \times a \times ar = \frac{54}{2} = 27$$

$$\Rightarrow a = 3$$

Now

$$2x^3 - 19x^2 + 57x - 54 = 0$$

$$\Rightarrow [x - 3][x - 2][2x - 9] = 0$$

$$\Rightarrow x = 3, 2, \frac{9}{2}$$

$\therefore$  Numbers in G.P. are  $\frac{9}{2}, 3, 2$

$$\therefore \text{For G.P., } S_{\infty} = \frac{a/r}{1-r} = \frac{\frac{3}{2/3}}{1-\frac{2}{3}} = \frac{27}{2}$$

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#### Correct Options

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Answer:01

Correct Answer: 13.5