

## Sequence and Series - Class XI

### Past Year JEE Questions

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#### Questions

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##### Question: 01

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If  $b$  is the first term of an infinite G.P. whose sum is five, then  $b$  lies in the interval :

- A.  $(-\infty, -10]$
- B.  $(-10, 0)$
- C.  $(0, 10)$
- D.  $[10, \infty)$

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#### Solutions

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##### Solution: 01

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#### Explanation

Sum of infinite G.P,

$$S = \frac{b}{1-r}, \text{ where } |r| < 1$$

$$\Rightarrow 5 = \frac{b}{1-r}$$

$$\Rightarrow 1 - r = \frac{b}{5}$$

$$\Rightarrow b = 5(1 - r)$$

$$\text{as } |r| < 1$$

$$\therefore -1 < r < 1$$

$$\Rightarrow 1 > -r > -1$$

$$\Rightarrow 2 > 1 - r > 0$$

$$\Rightarrow 10 > 5(1 - r) > 0$$

$$\Rightarrow 10 > b > 0$$

$$\therefore \text{interval of } b = (0, 10)$$