

Answer on Question #52165 – Math - Calculus

$$\lim_{x \rightarrow 1} 1 + x + x^2 + \dots + x^{m-1}$$

- a) 1
- b) m-1
- c) m
- d) -1

Solution

$$\lim_{x \rightarrow 1} (1 + x + x^2 + \dots + x^{m-1}) = \lim_{x \rightarrow 1} \left(\sum_{i=0}^{m-1} x^i \right) = \sum_{i=0}^{m-1} \left(\lim_{x \rightarrow 1} (x^i) \right) = \sum_{i=0}^{m-1} 1^i = \sum_{i=0}^{m-1} 1 = m$$

Answer: c) m .