

Exercise 2023-12 ED-00007(1) Geometric sequences

- (1) Write the next three terms in each of the following sequences:
[Also indicate which of the sequences are geometric sequences. (GS)]

- (a) 2 ; 10 ; 50 ; 250 ;
- (b) 31 ; 39 ; 47 ; 55 ;
- (c) 1 011 ; 1 008 ; 1 005 ; 1 002 ;
- (d) $-0,17$; $-0,37$; $-0,57$; $-0,77$;
- (e) $\frac{1}{8}$; $\frac{3}{7}$; $\frac{9}{6}$; $\frac{27}{5}$;
- (f) $\frac{1}{2}$; 1 ; 2 ; 4 ;

- (2) Write the first four terms in each of the following sequences:
[Also indicate which of the sequences are geometric sequences. (GS)]

- (a) $T_n = -4n$
- (b) $T_n = 3^n$
- (c) $T_n = n - 5$
- (d) $T_n = 2n + 1$
- (e) $T_n = n^2 - 1$
- (f) $T_n = 3^{n+1}$

- (3) Consider the sequence: 6 ; 2 ; $\frac{2}{3}$; $\frac{2}{9}$;

- (a) Calculate the general term of the sequence.
- (b) Calculate T_{11} .
- (c) Calculate n if $T_n = \frac{2}{729}$.

- (4) Consider the sequence: -5 ; 10 ; -20 ; 40 ;

- (a) Is this sequence converging? Motivate.
- (b) Calculate the general term of the sequence.
- (c) Calculate T_{16} .
- (d) Calculate n if $T_n = -5\,120$.