

GEOMETRIC SERIES (practice)

1. Find the sum of the series:

A. $4 - \frac{4}{5} + \frac{4}{25} - \frac{4}{125} + \dots$

B. $3 + \frac{1}{3} + \frac{1}{27} + \frac{1}{81} + \dots$

C. $e - \frac{e^2}{5} + \frac{e^3}{25} - \frac{e^4}{125} + \dots$

D. $\sum_{n=3}^{\infty} \frac{1}{4^n}$

E. $\sum_{n=0}^{\infty} \frac{2^{n+1} + 3}{4^n}$

F. $\sum_{n=0}^{\infty} \frac{5^n}{3^n}$

3. A ball is dropped from a height of 9.0 m. On each upward bounce the ball returns to $\frac{1}{3}$ of its previous height.

A. Find the expression for the height to which the ball rises after it hits the floor for the n^{th} time.

B. Find the total vertical distance the ball travels before coming to rest.