

Precalculus - Sequences and Series - Test

Common Core F-IF.A.3, F-BF.A.2, A-SSE.B.4 · maths-pdf.fr/en/

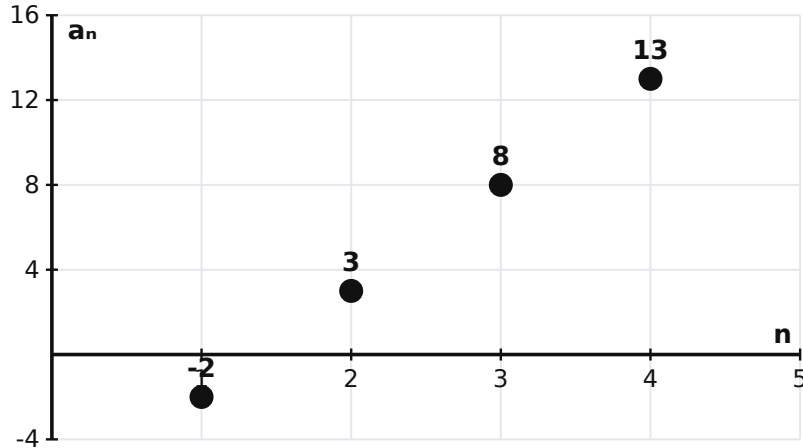
Name: _____ Class: _____ Date: ____/____/____

This 20-point test covers arithmetic and geometric sequences, sigma notation, finite and infinite sums and a bouncing-ball model (F-IF.A.3, F-BF.A.2, A-SSE.B.4). You have 45 minutes. Show your work.

About this test

- Grade: Precalculus
- Chapter: Sequences and Series
- Standards: F-IF.A.3, F-BF.A.2, A-SSE.B.4
- Time: 45 minutes
- Total: 20 points

Question 1 - Arithmetic terms [2 pts]



The first four terms.

For $a_n = -2 + 5(n-1)$, list the first four terms and find a_{15} .

Question 2 - Geometric term [2 pts]

A geometric sequence has $a_1 = 5$ and $r = -2$. Find a_6 .

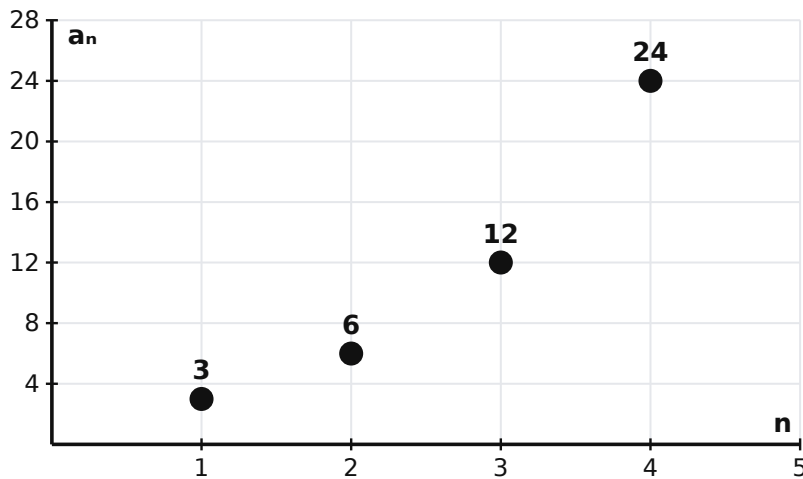
Question 3 - Recursive to explicit [2 pts]

A sequence has $a_1 = 7$ and $a_n = a_{n-1} - 3$. Write an explicit formula.

Question 4 - Arithmetic sum [2 pts]

Find the sum of the first 25 terms of $4, 7, 10, \dots$.

Question 5 - Read a sequence graph [3 pts]



A sequence graph.

The graph shows the first four terms of a geometric sequence. (a) Find the common ratio. (b) Write a_n . (c) Find a_8 .

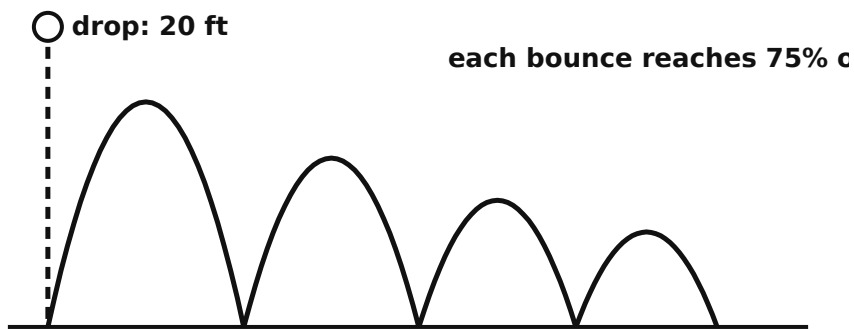
Question 6 - Sigma notation [2 pts]

Evaluate $\sum_{k=1}^5 4\left(\frac{1}{2}\right)^{k-1}$.

Question 7 - Infinite series [2 pts]

Find the sum of the infinite series with $a_1 = 12$ and $r = \frac{1}{3}$.

Question 8 - Bouncing ball [3 pts]



A ball dropped from 20 feet.

A ball is dropped from 20 ft and rebounds to 75% of its previous height each time. (a) How high is the third rebound? (b) Find the total distance traveled before it stops.

Question 9 - Repeating decimal [2 pts]

Write $0.\overline{27}$ as a fraction using an infinite series.