

A sequence is shown below.

$$6, 12, 20, 30, 42, 56, \dots$$

Which is the recursive formula for this sequence?

- A $t_n = n + 2(t_{n-1} + 1)$
- B $t_n = (t_{n-1} + 1)(n - 2)$
- C $t_n = 2(t_{n-1} + 2) - (n + 2)$
- D $t_n = t_{n-1} + 2(n + 1)$

A sequence is shown below.

$$1, 3, 3^2, 3^3, \dots$$

How many terms of the sequence must be added together for the sum to equal 3,280?

- A 6
- B 7
- C 8
- D 9

The first term of an infinite geometric sequence is 2. The sum of the sequence is 6. What is the common ratio of the sequence?

- A $\frac{1}{3}$
- B $\frac{2}{3}$
- C $\frac{3}{5}$
- D $\frac{4}{3}$

Which is true of the series shown below?

$$\pi + \frac{3\pi}{4} + \frac{9\pi}{16} + \frac{27\pi}{64} + \dots$$

- A The series diverges.
- B The series converges to $\frac{3\pi}{2}$.
- C The series converges to $\frac{4\pi}{3}$.
- D The series converges to 4π .

Karen recursively generated a sequence of five positive integers by starting with a positive integer, a_1 , and then applying the recursive formula $a_n = a_{n-1} + 3n - 1$ to generate a_n for $n = 2, 3, 4$, and 5.

If the value of a_5 was 407, what was the value of Karen's starting term, a_1 ?

- A 366
- B 367
- C 368
- D 369