

Mathematics Algebra I Benchmark Assessment

13 The first term of a sequence is 1. After this, the next term is found by multiplying the previous term by  $\frac{1}{2}$ . For an integer  $n$ , which of the following correctly defines the terms of this sequence?

(A)  $a_1 = 1$   
 $a_{n+1} = \frac{1}{2} a_{n-1}$  for  $n \geq 2$

(B)  $a_1 = 1$   
 $a_{n-1} = \frac{1}{2} a_n$  for  $n \geq 2$

(C)  $a_1 = 1$   
 $a_n = \frac{1}{2} a_{n+1}$  for  $n \geq 2$

(D)  $a_1 = 1$   
 $a_n = \frac{1}{2} a_{n-1}$  for  $n \geq 2$

14 A sequence is defined below.

$$s_n = 3(n - 1) + 1$$

Which of the following statements is true?

- (A) The function  $f(x) = 3x - 2$  defines the same sequence on the domain of positive integers.
- (B) The function  $f(x) = 3x + 1$  defines the same sequence on the domain of positive integers.
- (C) The function  $f(x) = 3x - 2$  defines the same sequence on the domain of rational numbers.
- (D) The function  $f(x) = 3x + 1$  defines the same sequence on the domain of rational numbers.