

Name _____
Date: _____

Additional Work 3
Mr. Pineda

1.

The formula below can be used to model which scenario?

$$a_1 = 3000$$

$$a_n = 0.80a_{n-1}$$

- (1) The first row of a stadium has 3000 seats, and each row thereafter has 80 more seats than the row in front of it.
- (2) The last row of a stadium has 3000 seats, and each row before it has 80 fewer seats than the row behind it.
- (3) A bank account starts with a deposit of \$3000, and each year it grows by 80%.
- (4) The initial value of a specialty toy is \$3000, and its value each of the following years is 20% less.

3.

Given $f(9) = -2$, which function can be used to generate the sequence $-8, -7.25, -6.5, -5.75, \dots$?

- (1) $f(n) = -8 + 0.75n$
- (2) $f(n) = -8 - 0.75(n - 1)$
- (3) $f(n) = -8.75 + 0.75n$
- (4) $f(n) = -0.75 + 8(n - 1)$

5.

Kristin wants to increase her running endurance. According to experts, a gradual mileage increase of 10% per week can reduce the risk of injury. If Kristin runs 8 miles in week one, which expression can help her find the total number of miles she will have run over the course of her 6-week training program?

- (1) $\sum_{n=1}^6 8(1.10)^{n-1}$
- (2) $\sum_{n=1}^6 8(1.10)^n$
- (3) $\frac{8-8(1.10)^6}{0.90}$
- (4) $\frac{8-8(0.10)^n}{1.10}$

2.

The population of Jamesburg for the years 2010–2013, respectively, was reported as follows:

250,000 250,937 251,878 252,822

How can this sequence be recursively modeled?

- (1) $j_n = 250,000(1.00375)^{n-1}$
- (2) $j_n = 250,000 + 937^{(n-1)}$
- (3) $j_1 = 250,000$
 $j_n = 1.00375j_{n-1}$
- (4) $j_n = 250,000$
 $j_n = j_{n-1} + 937$

4.

A recursive formula for the sequence $18, 9, 4.5, \dots$ is

- (1) $g_1 = 18$
 - (2) $g_n = 18\left(\frac{1}{2}\right)^{n-1}$
 - (3) $g_1 = 18$
 - (4) $g_n = 18(2)^{n-1}$
- $$g_n = \frac{1}{2}g_{n-1} \qquad g_n = 2g_{n-1}$$

6.

The sequence $a_1 = 6, a_n = 3a_{n-1}$ can also be written as

- (1) $a_n = 6 \cdot 3^n$
- (2) $a_n = 6 \cdot 3^{n+1}$
- (3) $a_n = 2 \cdot 3^n$
- (4) $a_n = 2 \cdot 3^{n+1}$