

**Topic:** Listing the first terms

**Question:** Write the first three terms of the sequence.

$$a_{n+1} = 2a_n$$

$$\text{where } a_1 = 2$$

**Answer choices:**

- A      2, 8 and 16
- B      4, 8 and 12
- C      2, 4 and 8
- D      2, 4 and 6



**Solution: C**

To get the first three terms of the sequence, just plug  $n = 1$  and  $n = 2$  into the formula for  $a_{n+1}$  as follows.

$$a_1 = 2$$

$$n = 1$$

$$a_{1+1} = 2a_1$$

$$a_2 = 2(2)$$

$$a_2 = 4$$

$$n = 2$$

$$a_{2+1} = 2a_2$$

$$a_3 = 2(4)$$

$$a_3 = 8$$

The first three terms of the sequence are

2, 4, 8



**Topic:** Listing the first terms

**Question:** Write the first four terms of the sequence.

$$a_{n+1} = 3a_n - 4$$

$$\text{where } a_1 = 3$$

**Answer choices:**

- A     3, 5, 12 and 32
- B     3, 5, 11 and 29
- C     3, 9, 27 and 81
- D     3, 5, 7 and 9



**Solution: B**

To get the first four terms of the sequence, just plug  $n = 1, 2, 3$  into the formula for  $a_{n+1}$  as follows.

$$a_1 = 3$$

$$n = 1 \quad a_{1+1} = 3a_1 - 4 \quad a_2 = 3(3) - 4 \quad a_2 = 5$$

$$n = 2 \quad a_{2+1} = 3a_2 - 4 \quad a_3 = 3(5) - 4 \quad a_3 = 11$$

$$n = 3 \quad a_{3+1} = 3a_3 - 4 \quad a_4 = 3(11) - 4 \quad a_4 = 29$$

The first four terms of the sequence are

3, 5, 11, 29



**Topic:** Listing the first terms

**Question:** Write the first five terms of the sequence.

$$a_{n+1} = (a_n)^2 + 2a_n - 1$$

$$\text{where } a_1 = 1$$

**Answer choices:**

- A      1, 4, 12, 36 and 192
- B      1, 2, 7, 12 and 42
- C      1, 3, 14, 228 and 51,983
- D      1, 2, 7, 62 and 3,967



**Solution: D**

To get the first five terms of the sequence, just plug  $n = 1, 2, 3, 4$  into the formula for  $a_{n+1}$  as follows.

$$a_1 = 1$$

$$n = 1 \quad a_{1+1} = (a_1)^2 + 2a_1 - 1 \quad a_2 = (1)^2 + 2(1) - 1 \quad a_2 = 2$$

$$n = 2 \quad a_{2+1} = (a_2)^2 + 2a_2 - 1 \quad a_3 = (2)^2 + 2(2) - 1 \quad a_3 = 7$$

$$n = 3 \quad a_{3+1} = (a_3)^2 + 2a_3 - 1 \quad a_4 = (7)^2 + 2(7) - 1 \quad a_4 = 62$$

$$n = 4 \quad a_{4+1} = (a_4)^2 + 2a_4 - 1 \quad a_5 = (62)^2 + 2(62) - 1 \quad a_5 = 3,967$$

The first five terms of the sequence are

1, 2, 7, 62, 3,967

