F.BF.A.1: Sequences 3

1 Which recursively defined function has a first term equal to 10 and a common difference of 4?

1) $f(1) = 10$

$f(x) = f(x-1) + 4$

2) $f(1) = 4$

$f(x) = f(x-1) + 10$

3) $f(1) = 10$

$f(x) = 4f(x-1)$

4) $f(1) = 4$

$f(x) = 10f(x-1)$

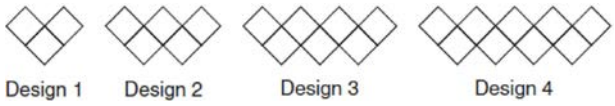
2 Which function defines the sequence $-6, -10, -14, -18, \ldots$, where $f(6) = -26$?

1) $f(x) = -4x - 2$
2) $f(x) = 4x - 2$
3) $f(x) = -x + 32$
4) $f(x) = x - 26$

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

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

4 If the pattern below continues, which equation(s) is a recursive formula that represents the number of squares in this sequence?



1) $y = 2x + 1$
2) $y = 2x + 3$
3) $a_1 = 3$

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

4) $a_1 = 1$

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

5 Given the pattern below, which recursive formula represents the number of triangles in this sequence?

1) $y = 2x + 3$
2) $y = 3x + 2$
3) $a_1 = 2$

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

4) $a_1 = 3$

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

6 Which recursively defined function represents the sequence $3, 7, 15, 31, \ldots$?

1) $f(1) = 3,\ f(n+1) = 2^{f(n)} + 3$
2) $f(1) = 3,\ f(n+1) = 2^{f(n)} - 1$
3) $f(1) = 3,\ f(n+1) = 2f(n) + 1$
4) $f(1) = 3,\ f(n+1) = 3f(n) - 2$

7 A sunflower is 3 inches tall at week 0 and grows 2 inches each week. Which function(s) shown below can be used to determine the height, $f(n)$, of the sunflower in n weeks?

I. $f(n) = 2n + 3$
II. $f(n) = 2n + 3(n-1)$
III. $f(n) = f(n-1) + 2$ where $f(0) = 3$

1) I and II
2) II, only
3) III, only
4) I and III

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Answer Section

1	ANS: 1	REF: 081514ai
2	ANS: 1	REF: 081610ai
3	ANS: 3	REF: 061720aii
4	ANS: 3	REF: 011818ai
5	ANS: 4	REF: 062121ai
6	ANS: 3	REF: 011618ai
7	ANS: 4	REF: 061421ai