

F.IF.A.3: Sequences 3

1 If a sequence is defined recursively by $f(0) = 2$ and $f(n + 1) = -2f(n) + 3$ for $n \geq 0$, then $f(2)$ is equal to

- 1) 1
- 2) -11
- 3) 5
- 4) 17

2 If $f(1) = 3$ and $f(n) = -2f(n - 1) + 1$, then $f(5) =$

- 1) -5
- 2) 11
- 3) 21
- 4) 43

3 Given the function $f(n)$ defined by the following:

$$f(1) = 2$$

$$f(n) = -5f(n - 1) + 2$$

Which set could represent the range of the function?

- 1) $\{2, 4, 6, 8, \dots\}$
- 2) $\{2, -8, 42, -208, \dots\}$
- 3) $\{-8, -42, -208, 1042, \dots\}$
- 4) $\{-10, 50, -250, 1250, \dots\}$

4 Which recursively defined function represents the sequence 3, 7, 15, 31, ...?

- 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) $f(1) = 3, f(n + 1) = 3f(n) - 2$

F.IF.A.3: Sequences 3**Answer Section**

1 ANS: 3

$$f(0+1) = -2f(0) + 3 = -2(2) + 3 = -1$$

$$f(1+1) = -2f(1) + 3 = -2(-1) + 3 = 5$$

REF: 011520ai

2 ANS: 4

$$f(1) = 3; f(2) = -5; f(3) = 11; f(4) = -21; f(5) = 43$$

REF: 081424ai

3 ANS: 2

$$f(1) = 2; f(2) = -5(2) + 2 = -8; f(3) = -5(-8) + 2 = 42; f(4) = -5(42) + 2 = -208$$

REF: 061718ai

4 ANS: 3

REF: 011618ai