Answer key

The method: Writing the formula

Arithmetic: $a_n = a_1 + (n-1)d$, then simplify. Geometric: $a_n = a_1 \cdot r^{n-1}$.

$-9, -2, 5, 12, \ldots \;\rightarrow\; a_n = 7n - 16$

$a_1 = -9,\ d = 7$

$-9 + (n-1)(7) = 7n - 16$ $a_n = a_1 + (n-1)d$; then simplify

$1, 2, 4, 8, \ldots \;\rightarrow\; a_n = 2^{n-1}$

$a_1 = 1,\ r = 2$ $a_n = a_1 \cdot r^{n-1}$

$a_n = 2^{n-1}$

Problems 1 and 2 worked out · Version 0A

$15, 18, 21, 24, \ldots \;\rightarrow\; a_n = 3n + 12$

$a_1 = 15,\ d = 3$

$15 + (n-1)(3) = 3n + 12$ $a_n = a_1 + (n-1)d$; then simplify

$-1, -4, -16, -64, \ldots \;\rightarrow\; a_n = -4^{n-1}$

$a_1 = -1,\ r = 4$ $a_n = a_1 \cdot r^{n-1}$

$a_n = -4^{n-1}$

Writing the formula · Version 0A

1) $a_n = 3n + 12$ 2) $a_n = -4^{n-1}$ 3) $a_n = 5 \cdot (-3)^{n-1}$
4) $a_n = -2^{n-1}$ 5) $a_n = 2n + 13$ 6) $a_n = -5n + 19$
7) $a_n = 5n + 4$ 8) $a_n = 3 \cdot 5^{n-1}$ 9) $a_n = 4 \cdot 5^{n-1}$
10) $a_n = (-2)^{n-1}$ 11) $a_n = 2 \cdot 5^{n-1}$
12) $a_n = -2 \cdot 3^{n-1}$ 13) $a_n = n + 10$
14) $a_n = -4n + 24$ 15) $a_n = 3n + 13$ 16) $a_n = 3^{n-1}$
17) $a_n = -5n + 25$ 18) $a_n = 4 \cdot (-2)^{n-1}$