Intro to Sequences

Directions: For the sequences below, find the next three terms in the sequence. For each list of numbers, determine the next three numbers in the list.

a. 1, 2, 3, 4, 5, 6, 7

b. 7, 9, 11, 13, 15, 17, 19, 21

c. 10, 7, 4, 1, -2, -5, -8, -11

d. 2, 4, 7, 11, 16, 22, 29, 37
(+2, +3, +4, +5)

e. 0, 1, 4, 9, 16, 25, 36, 49, 64

f. 2, 3.5, 5, 6.5, 8, 9.5, 11, 12.5, 14

g. 17.5, 13.2, 8.9, 4.6, 0.3, -4, -8.3, -12.6

h. 2, 5, 11, 23, 47, 95, 191, 383
(×2 + 1)
3, 6, 12, 24, 48, 96, 192

j. 1, 1, 2, 3, 5, 8, 13, 21, 34

Directions: Find the first 4 terms given the sequence.

1. $a_n = n^3 + 1$

$a_1 = (1)^3 + 1 = 2$

$a_2 = (2)^3 + 1 = 9$

$a_3 = (3)^3 + 1 = 28$

$a_4 = (4)^3 + 1 = 65$

$\boxed{2, 9, 28, 65}$

2. $a_n = n^3 - 10$

$a_1 = (1)^3 - 10 = -9$

$a_2 = (2)^3 - 10 = -2$

$a_3 = (3)^3 - 10 = 17$

$a_4 = (4)^3 - 10 = 54$

$\boxed{-9, -2, 17, 54}$

Find the specified term of the sequence.

3. 6th term; $a_1 = 3$, $a_n = (-2)a_{n-1}$, $n \geq 2$

$a_2 = (-2)a_{2-1} = (-2)a_1 = (-2)(3) = -6$

$a_3 = (-2)a_{3-1} = (-2)a_2 = (-2)(-6) = 12$

$a_4 = (-2)(12) = -24$

$a_5 = (-2)(-24) = 48$

$a_6 = (-2)(48) = \boxed{-96}$

4. 4th term; $a_1 = 2$, $a_n = a_{n-1} + 2n - 1$, $n \geq 2$

$a_2 = a_{2-1} + 2(2) - 1 = a_1 + 2(2) - 1 = 2 + 2(2) - 1 = 5$

$a_3 = a_{3-1} + 2(3) - 1 = a_2 + 2(3) - 1 = 5 + 2(3) - 1 = 10$

$a_4 = 10 + 2(4) - 1 = \boxed{17}$