 Name_____

Introduction to Sequences

Date_____ Period____

Find the next three terms in each sequence.

1) 1, −3, 9, −27, 81, ...

2) 9, 109, 209, 309, 409, ...

3) 0, 3, 8, 15, 24, ...

4) $\frac{1}{2}, \frac{1}{2}, \frac{3}{8}, \frac{1}{4}, \frac{5}{32}, \ldots$

5) 4, 16, 36, 64, 100, ...

6) 14, 34, 54, 74, 94, ...

7) $5, \frac{5}{2}, \frac{5}{4}, \frac{5}{8}, \frac{5}{16}, \ldots$

8) −9, 101, −999, 10001, −99999, ...

Find the tenth term in each sequence.

9) $-1, \frac{2}{3}, \frac{7}{3}, 4, \frac{17}{3}, \ldots$

10) 7, 9, 12, 16, 21, ...

11) −2, −6, −18, −54, −162, ...

12) −23, −18, −13, −8, −3, ...

13) −4, 12, −36, 108, −324, ...

14) $-6, -2, 0, 1, \frac{3}{2}, \ldots$

15) −28, 172, 372, 572, 772, ...

16) 37, 46, 55, 64, 73, ...

Find the first four terms in each sequence.

17) $a_n = \frac{2n+1}{n^3}$

18) $a_n = 3^{n-1}$

19) $a_n = n^2 + 1$

20) $a_n = \frac{n^3}{2n+1}$

Find the tenth term in each sequence.

21) $a_n = \dfrac{2n+1}{n^3}$

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

23) $a_n = (2n)^2$

24) $a_n = (2n-1)^2$

Find the first four terms in each sequence.

25) $a_n = a_{n-1} + 10$
$a_1 = 29$

26) $a_n = a_{n-1} \cdot 2$
$a_1 = -1$

27) $a_n = a_{n-1} + n$
$a_1 = -4$

28) $a_n = \dfrac{2 + a_{n-1}}{2}$
$a_1 = 10$

Find the tenth term in each sequence.

29) $a_n = na_{n-1}$
$a_1 = -1$

30) $a_n = a_{n-1} + 10$
$a_1 = 11$

31) $a_n = a_{n-1} \cdot 3$
$a_1 = -3$

32) $a_n = \dfrac{2 + a_{n-1}}{2}$
$a_1 = -14$

Write the explicit formula for each sequence.

33) $-12,\ -9,\ -6,\ -3,\ 0,\ ...$

34) $-6,\ -3,\ -2,\ -\dfrac{3}{2},\ -\dfrac{6}{5},\ ...$

Write the recursive formula for each sequence.

35) $2,\ 4,\ 7,\ 11,\ 16,\ ...$

36) $15,\ 215,\ 415,\ 615,\ 815,\ ...$

Kuta Software - Infinite Algebra 2 Name_____

Introduction to Sequences

Date_____ Period____

Find the next three terms in each sequence.

1) 1, −3, 9, −27, 81, ...

−243, 729, −2187

2) 9, 109, 209, 309, 409, ...

509, 609, 709

3) 0, 3, 8, 15, 24, ...

35, 48, 63

4) $\frac{1}{2}, \frac{1}{2}, \frac{3}{8}, \frac{1}{4}, \frac{5}{32}, \ldots$

$\frac{3}{32}, \frac{7}{128}, \frac{1}{32}$; Note: $a_n = \frac{n}{2^n}$

5) 4, 16, 36, 64, 100, ...

144, 196, 256

6) 14, 34, 54, 74, 94, ...

114, 134, 154

7) $5, \frac{5}{2}, \frac{5}{4}, \frac{5}{8}, \frac{5}{16}, \ldots$

$\frac{5}{32}, \frac{5}{64}, \frac{5}{128}$

8) −9, 101, −999, 10001, −99999, ...

1000001, −9999999, 100000001

Find the tenth term in each sequence.

9) $-1, \frac{2}{3}, \frac{7}{3}, 4, \frac{17}{3}, \ldots$

$a_{10} = 14$

10) 7, 9, 12, 16, 21, ...

$a_{10} = 61$

11) −2, −6, −18, −54, −162, ...

$a_{10} = -39366$

12) −23, −18, −13, −8, −3, ...

$a_{10} = 22$

13) −4, 12, −36, 108, −324, ...

$a_{10} = 78732$

14) $-6, -2, 0, 1, \frac{3}{2}, \ldots$

$a_{10} = \frac{127}{64}$

15) −28, 172, 372, 572, 772, ...

$a_{10} = 1772$

16) 37, 46, 55, 64, 73, ...

$a_{10} = 118$

Find the first four terms in each sequence.

17) $a_n = \frac{2n+1}{n^3}$ $3, \frac{5}{8}, \frac{7}{27}, \frac{9}{64}$

18) $a_n = 3^{n-1}$

1, 3, 9, 27

19) $a_n = n^2 + 1$

2, 5, 10, 17

20) $a_n = \frac{n^3}{2n+1}$ $\frac{1}{3}, \frac{8}{5}, \frac{27}{7}, \frac{64}{9}$

Find the tenth term in each sequence.

21) $a_n = \frac{2n+1}{n^3}$

$a_{10} = \frac{21}{1000}$

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

$a_{10} = 262144$

23) $a_n = (2n)^2$

$a_{10} = 400$

24) $a_n = (2n-1)^2$

$a_{10} = 361$

Find the first four terms in each sequence.

25) $a_n = a_{n-1} + 10$
$a_1 = 29$

29, 39, 49, 59

26) $a_n = a_{n-1} \cdot 2$
$a_1 = -1$

−1, −2, −4, −8

27) $a_n = a_{n-1} + n$
$a_1 = -4$

−4, −2, 1, 5

28) $a_n = \frac{2 + a_{n-1}}{2}$
$a_1 = 10$

10, 6, 4, 3

Find the tenth term in each sequence.

29) $a_n = na_{n-1}$
$a_1 = -1$

$a_{10} = -3628800$

30) $a_n = a_{n-1} + 10$
$a_1 = 11$

$a_{10} = 101$

31) $a_n = a_{n-1} \cdot 3$
$a_1 = -3$

$a_{10} = -59049$

32) $a_n = \frac{2 + a_{n-1}}{2}$
$a_1 = -14$

$a_{10} = \frac{63}{32}$

Write the explicit formula for each sequence.

33) −12, −9, −6, −3, 0, ...

$a_n = -15 + 3n$

34) −6, −3, −2, $-\frac{3}{2}$, $-\frac{6}{5}$, ... $a_n = -\frac{6}{n}$

Write the recursive formula for each sequence.

35) 2, 4, 7, 11, 16, ...

$a_n = a_{n-1} + n$
$a_1 = 2$

36) 15, 215, 415, 615, 815, ...

$a_n = a_{n-1} + 200$
$a_1 = 15$