Arithmetic Sequences

Date_____ Period____

Determine if the sequence is arithmetic. If it is, find the common difference.

1) 35, 32, 29, 26, ...

2) −3, −23, −43, −63, ...

3) −34, −64, −94, −124, ...

4) −30, −40, −50, −60, ...

5) −7, −9, −11, −13, ...

6) 9, 14, 19, 24, ...

Given the explicit formula for an arithmetic sequence find the first five terms and the term named in the problem.

7) $a_n = -11 + 7n$
Find a_{34}

8) $a_n = 65 - 100n$
Find a_{39}

9) $a_n = -7.1 - 2.1n$
Find a_{27}

10) $a_n = \frac{11}{8} + \frac{1}{2}n$
Find a_{23}

Given the first term and the common difference of an arithmetic sequence find the first five terms and the explicit formula.

11) $a_1 = 28,\ d = 10$

12) $a_1 = -38,\ d = -100$

13) $a_1 = -34,\ d = -10$

14) $a_1 = 35,\ d = 4$

Given a term in an arithmetic sequence and the common difference find the first five terms and the explicit formula.

15) $a_{38} = -53.2,\ d = -1.1$

16) $a_{40} = -1191,\ d = -30$

17) $a_{37} = 249,\ d = 8$

18) $a_{36} = -276,\ d = -7$

Given the first term and the common difference of an arithmetic sequence find the recursive formula and the three terms in the sequence after the last one given.

19) $a_1 = \frac{3}{5},\ d = -\frac{1}{3}$

20) $a_1 = 39,\ d = -5$

21) $a_1 = 8,\ d = -2$

22) $a_1 = -9.2,\ d = 0.9$

Given a term in an arithmetic sequence and the common difference find the recursive formula and the three terms in the sequence after the last one given.

23) $a_{21} = -1.4,\ d = 0.6$

24) $a_{22} = -44,\ d = -2$

25) $a_{38} = -278,\ d = -8$

26) $a_{12} = 28.6,\ d = 1.8$

Given two terms in an arithmetic sequence find the recursive formula.

27) $a_{18} = 3362$ and $a_{38} = 7362$

28) $a_{18} = 44.3$ and $a_{33} = 84.8$

29) $a_{18} = 97$ and $a_{40} = 229$

30) $a_{12} = -\frac{43}{8}$ and $a_{36} = -\frac{139}{8}$

Kuta Software - Infinite Algebra 2 Name_____

Arithmetic Sequences

Date_____ Period____

Determine if the sequence is arithmetic. If it is, find the common difference.

1) 35, 32, 29, 26, ...

$d = -3$

2) −3, −23, −43, −63, ...

$d = -20$

3) −34, −64, −94, −124, ...

$d = -30$

4) −30, −40, −50, −60, ...

$d = -10$

5) −7, −9, −11, −13, ...

$d = -2$

6) 9, 14, 19, 24, ...

$d = 5$

Given the explicit formula for an arithmetic sequence find the first five terms and the term named in the problem.

7) $a_n = -11 + 7n$

Find a_{34}

First Five Terms: −4, 3, 10, 17, 24

$a_{34} = 227$

8) $a_n = 65 - 100n$

Find a_{39}

First Five Terms: −35, −135, −235, −335, −435

$a_{39} = -3835$

9) $a_n = -7.1 - 2.1n$

Find a_{27}

First Five Terms: −9.2, −11.3, −13.4, −15.5, −17.6

$a_{27} = -63.8$

10) $a_n = \frac{11}{8} + \frac{1}{2}n$

Find a_{23}

First Five Terms: $\frac{15}{8}, \frac{19}{8}, \frac{23}{8}, \frac{27}{8}, \frac{31}{8}$

$a_{23} = \frac{103}{8}$

Given the first term and the common difference of an arithmetic sequence find the first five terms and the explicit formula.

11) $a_1 = 28,\ d = 10$

First Five Terms: 28, 38, 48, 58, 68

Explicit: $a_n = 18 + 10n$

12) $a_1 = -38,\ d = -100$

First Five Terms: −38, −138, −238, −338, −438

Explicit: $a_n = 62 - 100n$

13) $a_1 = -34,\ d = -10$

First Five Terms: −34, −44, −54, −64, −74

Explicit: $a_n = -24 - 10n$

14) $a_1 = 35,\ d = 4$

First Five Terms: 35, 39, 43, 47, 51

Explicit: $a_n = 31 + 4n$

Given a term in an arithmetic sequence and the common difference find the first five terms and the explicit formula.

15) $a_{38} = -53.2,\ d = -1.1$

First Five Terms: $-12.5,\ -13.6,\ -14.7,\ -15.8,\ -16.9$
Explicit: $a_n = -11.4 - 1.1n$

16) $a_{40} = -1191,\ d = -30$

First Five Terms: $-21,\ -51,\ -81,\ -111,\ -141$
Explicit: $a_n = 9 - 30n$

17) $a_{37} = 249,\ d = 8$

First Five Terms: $-39,\ -31,\ -23,\ -15,\ -7$
Explicit: $a_n = -47 + 8n$

18) $a_{36} = -276,\ d = -7$

First Five Terms: $-31,\ -38,\ -45,\ -52,\ -59$
Explicit: $a_n = -24 - 7n$

Given the first term and the common difference of an arithmetic sequence find the recursive formula and the three terms in the sequence after the last one given.

19) $a_1 = \frac{3}{5},\ d = -\frac{1}{3}$ Next 3 terms: $\frac{4}{15},\ -\frac{1}{15},\ -\frac{2}{5}$
Recursive: $a_n = a_{n-1} - \frac{1}{3}$
$a_1 = \frac{3}{5}$

20) $a_1 = 39,\ d = -5$ Next 3 terms: 34, 29, 24
Recursive: $a_n = a_{n-1} - 5$
$a_1 = 39$

21) $a_1 = 8,\ d = -2$ Next 3 terms: 6, 4, 2
Recursive: $a_n = a_{n-1} - 2$
$a_1 = 8$

22) $a_1 = -9.2,\ d = 0.9$ Next 3 terms: $-8.3,\ -7.4,\ -6.5$
Recursive: $a_n = a_{n-1} + 0.9$
$a_1 = -9.2$

Given a term in an arithmetic sequence and the common difference find the recursive formula and the three terms in the sequence after the last one given.

23) $a_{21} = -1.4,\ d = 0.6$ Next 3 terms: $-0.8,\ -0.2,\ 0.4$
Recursive: $a_n = a_{n-1} + 0.6$
$a_1 = -13.4$

24) $a_{22} = -44,\ d = -2$ Next 3 terms: $-46,\ -48,\ -50$
Recursive: $a_n = a_{n-1} - 2$
$a_1 = -2$

25) $a_{38} = -278,\ d = -8$ Next 3 terms: $-286,\ -294,\ -302$
Recursive: $a_n = a_{n-1} - 8$
$a_1 = 18$

26) $a_{12} = 28.6,\ d = 1.8$ Next 3 terms: 30.4, 32.2, 34
Recursive: $a_n = a_{n-1} + 1.8$
$a_1 = 8.8$

Given two terms in an arithmetic sequence find the recursive formula.

27) $a_{18} = 3362$ and $a_{38} = 7362$

$a_n = a_{n-1} + 200$
$a_1 = -38$

28) $a_{18} = 44.3$ and $a_{33} = 84.8$

$a_n = a_{n-1} + 2.7$
$a_1 = -1.6$

29) $a_{18} = 97$ and $a_{40} = 229$

$a_n = a_{n-1} + 6$
$a_1 = -5$

30) $a_{12} = -\frac{43}{8}$ and $a_{36} = -\frac{139}{8}$ $a_n = a_{n-1} - \frac{1}{2}$
$a_1 = \frac{1}{8}$