Name_____

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

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

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

Answers to Arithmetic Sequences

1) $d = -3$ 2) $d = -20$ 3) $d = -30$ 4) $d = -10$

5) $d = -2$ 6) $d = 5$ 7) First Five Terms: $-4,\ 3,\ 10,\ 17,\ 24$
$$a_{34} = 227$$

8) First Five Terms: $-35,\ -135,\ -235,\ -335,\ -435$
$$a_{39} = -3835$$

9) First Five Terms: $-9.2,\ -11.3,\ -13.4,\ -15.5,\ -17.6$
$$a_{27} = -63.8$$

10) First Five Terms: $\dfrac{15}{8},\ \dfrac{19}{8},\ \dfrac{23}{8},\ \dfrac{27}{8},\ \dfrac{31}{8}$

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

11) First Five Terms: $28,\ 38,\ 48,\ 58,\ 68$
Explicit: $a_n = 18 + 10n$

12) First Five Terms: $-38,\ -138,\ -238,\ -338,\ -438$
Explicit: $a_n = 62 - 100n$

13) First Five Terms: $-34,\ -44,\ -54,\ -64,\ -74$
Explicit: $a_n = -24 - 10n$

14) First Five Terms: $35,\ 39,\ 43,\ 47,\ 51$
Explicit: $a_n = 31 + 4n$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

30) $a_n = a_{n-1} - \dfrac{1}{2}$
$$a_1 = \dfrac{1}{8}$$