

Arithmetic Sequences

Determine whether each sequence appears to be an arithmetic sequence. If so, name the common difference (d) and the next three terms.

1. 2, 8, 14, 20, ...

$$d=6$$

$$26, 32, 38$$

2. 2.1, 1.4, 0.7, 0, ...

$$d=-0.7$$

$$-0.7, -1.4, -2.1$$

3. 1, 1, 2, 3, ...

no

4. 0.1, 0.3, 0.9, 2.7, ...

no

5. -1, 10, -100, 1100, ...

no

6. 0, -2, -4, -6, ...

$$d=-2$$

$$-8, -10, -12$$

Find the common difference (d) for each arithmetic sequence.

7. 0, 6, 12, 18, ...

$$d=6$$

8. 45, 32, 19, 6, ...

$$d=-13$$

9. 107, 105, 103, 101, ...

$$d=-2$$

10. 7.9, 5.7, 3.5, 1.3, ...

$$d=-2.2$$

11. $\frac{1}{5}, \frac{2}{5}, \frac{3}{5}, \frac{4}{5}, \dots$

$$d=\frac{1}{5}$$

12. 4.25, 4.32, 4.39, 4.46, ...

$$d=0.07$$

Find the next four terms in each arithmetic sequence.

13. -4, -7, -10, -13, ...

$$-16, -19, -22, -25$$

14. 14, 21, 28, 35, ...

$$42, 49, 56, 63$$

15. 505, 512, 519, 526, ...

$$533, 540, 547, 554$$

16. 1.8, 1.3, 0.8, 0.3, ...

$$-0.2, -0.7, -1.2, -1.7$$

17. 25, 42, 59, 76, ...

$$93, 110, 127, 144$$

18. 64, 53, 42, 31, ...

$$20, 9, -2, -13$$

Find the missing term in the arithmetic sequence.

19. -30, -21, -12, -3, 6

20. $\frac{1}{8}, \frac{3}{8}, \frac{5}{8},$ $\frac{7}{8}$, $1\frac{1}{8}$

Practice Arithmetic Sequences

Name Key
Date _____ Class _____

1. What defines a sequence as arithmetic?

2. 0, 5, 10, 15, 20, ...

a. Is this sequence an arithmetic sequence? yes

b. Describe how consecutive terms of the sequence change.
add 5

c. Describe the sequence by stating a rule that can be used to continue the sequence. Use the formula for finding the nth term -

$$a_n = a_1 + d(n - 1) \quad a_n = 0 + 5(n - 1)$$

$$\boxed{a_n = 5n - 5}$$

d. Use your rule to make a table to illustrate the sequence.

Term	1	2	3	4	5
Value	0	5	10	15	20

e. Plot the ordered pairs from your table on graph paper.

f. Describe the shape of the graph.

line going up to the right

g. Does your graph represent a linear function?

yes

3. 7, 4, 1, -2, -5, ...

a. Is this sequence an arithmetic sequence? yes

b. Describe how consecutive terms of the sequence change.
subtract 3

c. Describe the sequence by stating a rule that can be used to continue the sequence. Use the formula for finding the nth term -

$$a_n = a_1 + d(n - 1) \quad a_n = 7 - 3(n - 1)$$

$$7 - 3n + 3$$

$$\boxed{a_n = -3n + 10}$$

d. Use your rule to make a table to illustrate the sequence.

Term	1	2	3	4	5	6
Value	7	4	1	-2	-5	-8

e. Plot the ordered pairs from your table on graph paper.

f. Describe the shape of the graph.

line going down to the right

g. Does your graph represent a linear function?

yes

4. 0, 3, 8, 15, 24, 35, 48, ...

a. Is this sequence an arithmetic sequence? *no*

b. Describe how consecutive terms of the sequence change.

add the next odd # each time

c. Describe the sequence by stating a rule that can be used to continue the sequence. Use the formula for finding the nth term -

$$a_n = a_1 + d(n - 1).$$

d. Use your rule to make a table to illustrate the sequence.

Term							
Value							

e. Plot the ordered pairs from your table on graph paper.

f. Describe the shape of the graph.

g. Does your graph represent a linear function?

5. Which sequence is not a linear function?

a. 2, 4, 6, 8, ...

c. -12, -8, -4, ...

b. 1, 2, 3, 4, ...

d. 2, 6, 13, 19, ...

6. Which function is related to the arithmetic sequence found in the table below?

Term	1	2	3	4	x
Value	2	6	10	14	y

a. $y = 2n$

c. $y = 4n - 2$

b. $y = 3n - 1$

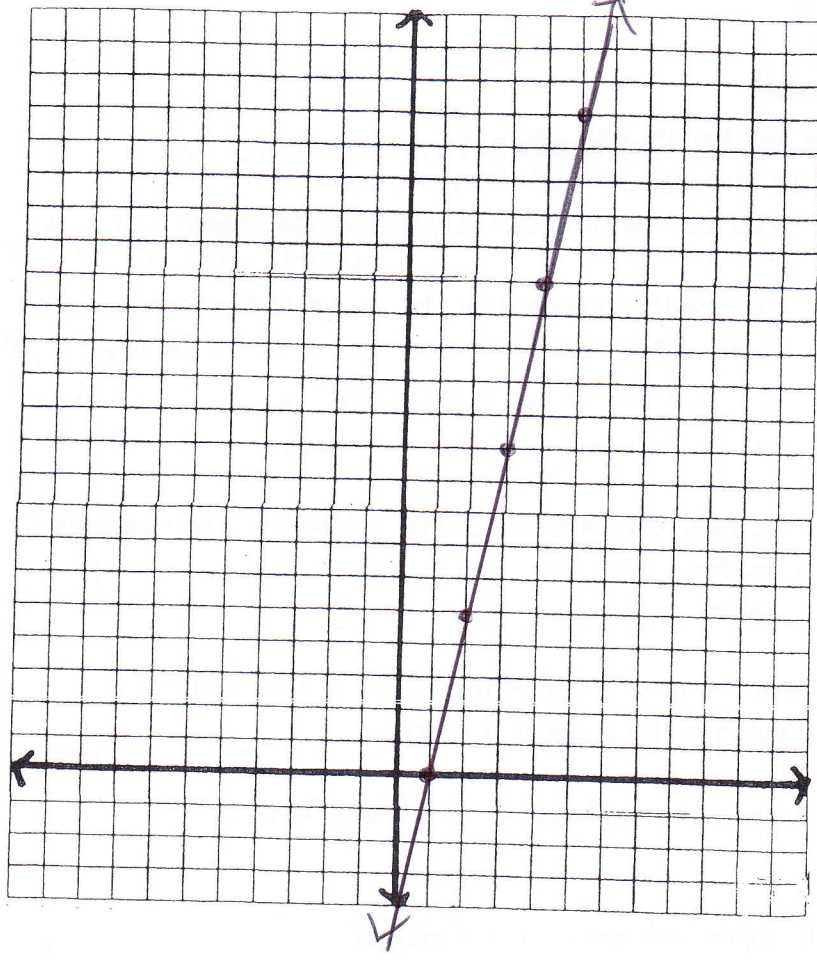
d. $y = 6n - 4$

$$\begin{aligned} a_n &= 2 + 4(n-1) \\ &= 2 + 4n - 4 \\ &= 4n - 2 \end{aligned}$$

7. Are all arithmetic sequences linear functions?

Yes

2.



3.

