Arithmetic Sequences Worksheet

An **Arithmetic Sequence** is a sequence of numbers in which the **difference between consecutive terms is always the same**. This constant difference is called the **common difference (d).**

Formula for the nth Term

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

Where:

- a_n = nth term
- a_1 = first term
- d = common difference
- n = term number

Example – Find the Next Three Terms

Find the next three terms in the sequence: **5, 8, 11, 14, …**

Step 1. Find the common difference. $8 - 5 = 3$

The common difference is **3**.

Step 2. Add 3 to each term.

14 + 3 = 17

17 + 3 = 20

20 + 3 = 23

Answer: 17, 20, 23

Example 2 – Find the Common Difference

Find the common difference of the sequence: **20, 15, 10, 5, …**

Subtract consecutive terms. $15 - 20 = -5$

The common difference is $d = -5$

Example 3 – Find the 10th Term

Find the 10th term of the sequence: **4, 7, 10, 13, …**

Step 1. Identify the values.

- $a_1 = 4$
- $d = 3$
- $n = 10$

Step 2. Use the formula. $a_n = a_1 + (n-1)d$

Substitute the values. $a_{10} = 4 + (10-1)(3)$

Step 3. Simplify.

$$a_{10} = 4 + 27$$

$$a_{10} = 31$$

Answer: The 10th term is 31.

LIVEWORKSHEETS

Part A – Find the Next Three Terms

1. 2, 5, 8, 11, _____, _____, _____
2. 12, 18, 24, 30, _____, _____, _____
3. 40, 35, 30, 25, _____, _____, _____
4. -6, -2, 2, 6, _____, _____, _____
5. 100, 90, 80, 70, _____, _____, _____

Part B – Find the Common Difference

Find the common difference.

6. 7, 11, 15, 19
   d = _____
7. 45, 40, 35, 30
   d = _____
8. -3, 2, 7, 12
   d = _____
9. 18, 25, 32, 39
   d = _____
10. 80, 72, 64, 56
    d = _____

Part C – Find the Missing Term

11. 4, 9, _____, 19, 24
    Missing term = _____
12. 60, 55, _____, 45, 40
    Missing term = _____
13. -8, -3, _____, 7, 12
    Missing term = _____
14. 13, 20, _____, 34
    Missing term = _____
15. 100, 85, _____, 55
    Missing term = _____

Part D – Find the nth Term

Use the formula: $a_n = a_1 + (n-1)d$

16. Find the 12th term. a_{12} = ____ + ( ) (4) = ____

    Sequence: 3, 7, 11, 15, ...

    Answer: _____

LIVEWORKSHEETS

17. Find the 15th term. a_{15} = ___ + (14) (___) = _____

Sequence: 8, 12, 16, 20, ...

Answer: _____

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18. Find the 20th term. a_{20} = ___ + (19) (-3) = ____ - 57 = _____

Sequence: 25, 22, 19, 16, ...

Answer: _____

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19. Find the 25th term. a_{25} = ____ + (24) (___) = _____

Sequence: 5, 10, 15, 20, ...

Answer: _____

LIVEWORKSHEETS