Pattern from Difference to Sum

Introduction

- Some patterns are formed by taking the difference between numbers and then turning them into sum patterns.
- We first observe how the difference between numbers is changing.
- Then we may notice that the sum of two or more numbers creates a pattern.
- These patterns help us connect subtraction and addition in sequences.
- Understanding these patterns improves reasoning and observation skills.

Examples with Solutions

Example: Observe the numbers: 1, 2, 4, 7, 11

- ✓ Differences: 2-1 = 1,
- **√** 4−2 = 2,
- **√** 7–4 = 3,
- ✓ 11**-**7 = 4
- ✓ Differences are increasing by 1

Answer: Next difference will be 5, so 11 + 5 = 16

Example: Find the next number in 5, 8, 12, 17, ____

- ✓ **Differences:** 8-5 = 3,
- ✓ 12-8 = 4,
- ✓ 17–12 = 5
- ✓ Next difference = 6
- ✓ 17 + 6 = 23

Answer: 23

Example: Create a sum pattern from odd number differences: 1, 4, 9, 16

- ✓ Differences: 4-1 = 3,
- ✓ 9–4 = 5,
- ✓ 16–9 = 7

✓ Differences are odd numbers increasing

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✓ Next difference = 9
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✓ 16 + 9 = 25

Answer: 25

Example: Observe the pattern: 2, 5, 10, 17, ____

- ✓ Differences: 5-2 = 3,
- ✓ 10-5 = 5,
- ✓ 17–10 = 7
- ✓ Next difference = 9
- ✓ 17 + 9 = 26

Answer: 26

Example: Find the pattern: 1, 3, 6, 10, 15

- ✓ **Differences:** 3-1 = 2,
- ✓ 6−3 = 3,
- ✓ 10–6 = 4,
- ✓ 15–10 = 5
- ✓ Next difference = 6

Answer: 21

Summary Points

- Patterns can be formed by looking at how differences between numbers change.
- If the difference increases steadily, we can predict the next number using addition.
- These patterns turn subtraction into sum patterns.
- They help in understanding number series and preparing for mental math.
- Spotting these patterns makes solving sequences easier and faster.