

## Pattern Puzzles – Pack 51

**Puzzle 1.** What number replaces the question mark in the grid?

5	5	11
4	13	7
12	10	?

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**Puzzle 2.** What number replaces the question mark in the grid?

6	6	2
3	21	15
19	9	?

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**Puzzle 3.** What comes next in the sequence?

3	25	109	321	751	1513	2745	4609	?
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**Puzzle 4.** What number replaces the question mark in the grid?

3	2	20
8	8	20
4	16	?

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**Puzzle 5.** What number replaces the question mark in the grid?

7	9	11
1	17	4
13	2	?

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**Puzzle 6.** What comes next in the sequence?

13	53	173	445	965	1853	3253	5333	?
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- A) 8285    
  B) 5333    
  C) 8309    
  D) 8261

**Puzzle 7.** What comes next in the sequence?

6	4	4	17	28	52	100	183	?
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- A) 335    
  B) 341    
  C) 338    
  D) 283

**Puzzle 8.** What number replaces the question mark in the grid?

1	5	14
2	29	20
25	2	?

- A) 6    
  B) 2    
  C) 12    
  D) 11

**Puzzle 9.** What comes next in the sequence?

11	11	3	7	14	17	9	15	17	23	15	23	?
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- A) 23    
  B) 21    
  C) 20    
  D) 29

**Puzzle 10.** What comes next in the sequence?

11	11	8	10	19	19	12	14	27	27	16	18	?
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- A) 28    
  B) 33    
  C) 36    
  D) 35

## Answer Key

1. **B) 18**

Column sums are triangular numbers: 21, 28, 36.

6. **A) 8285**

4th differences are all 24 (quartic sequence).

2. **A) 28**

Column sums are triangular numbers: 28, 36, 45.

7. **C) 338**

Rule:  $a(n) = a(n-1) + a(n-2) + a(n-3) + 3$ .

3. **C) 7291**

4th differences are all 24 (quartic sequence).

8. **D) 11**

Column sums are triangular numbers: 28, 36, 45.

4. **C) 44**

Row sums are perfect squares: 25, 36, 64.

9. **C) 20**

Four interleaved arithmetic series (period 4):

5. **B) 21**

Column sums are triangular numbers: 21, 28, 36.

10. **D) 35**

Four interleaved arithmetic series (period 4):