

### Pattern Puzzles – Pack 4

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

2	2	10
5	6	7
4	5	?

- A) 17     
  B) 12     
  C) 13     
  D) 9

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

5	3	12
4	8	11
7	8	?

- A) 14     
  B) 11     
  C) 8     
  D) 10

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

4	21	88	265	636	1309	2416	?
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- A) 4137     
  B) 4113     
  C) 3523     
  D) 4089

**Puzzle 4.** What comes next in the sequence?

4	12	26	48	82	136	?
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- A) 226     
  B) 225     
  C) 162     
  D) 200

**Puzzle 5.** What comes next in the sequence?

6	21	54	129	318	837	?
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- A) 2333     
  B) 2295     
  C) 876     
  D) 2334

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

9	41	149	405	905	1769	3141	?
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**Puzzle 7.** What comes next in the sequence?

7	39	147	403	903	1767	3139	?
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**Puzzle 8.** What number replaces the question mark in the grid?

2	5	6
7	6	2
5	3	?

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

11	45	155	413	915	1781	3155	?
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**Puzzle 10.** What comes next in the sequence?

3	7	16	35	74	153	312	?
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## Answer Key

1. **C) 13**

Row sums form arithmetic sequence: 14, 18, 22.

6. **B) 5189**

4th diffs: 24 (constant – quartic sequence).

2. **B) 11**

Row sums form arithmetic sequence: 20, 23, 26.

7. **D) 5187**

4th diffs: 24 (constant – quartic sequence).

3. **B) 4113**

4th diffs: 24 (constant – quartic sequence).

8. **B) 9**

Row sums form arithmetic sequence: 13, 15, 17.

4. **A) 226**

Formula:  $2n^2 + 2^n$ .  $n=7$ :  $98 + 128 = 226$ .

9. **C) 5205**

4th diffs: 24 (constant – quartic sequence).

5. **D) 2334**

Formula:  $3n^2 + 3^n$ .  $n=7$ :  $147 + 2187 = 2334$ .

10. **A) 631**

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