Pattern Puzzles — Pack 1

Puzzle 1. What comes next in the sequence?

1	12	54	160	375	756	1372	?

A) 2368 B) 1764 C) 2304 D) 1792

Puzzle 2. What comes next in the sequence?

5	11	24	51	106	217	440	?

A) 887 B) 886 C) 880 D) 447

Puzzle 3. What comes next in the sequence?

9	36	100	225	441	784	1296	?

A) 1296 B) 1989 C) 2026 D) 2025

Puzzle 4. What comes next in the sequence?

1	9	36	100	225	441	784	?

A) 1296 B) 1268 C) 1297 D) 784

Puzzle 5. What comes next in the sequence?

3	8	17	32	57	100	?

A) 176 B) 177 C) 164 D) 113

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Puzzle 6. What number replaces the question mark in the grid?

3	6	3
5	4	9
5	3	?

A) 22 B) 16 C) 10 D) 15

Puzzle 7. What comes next in the sequence?

36	100	225	441	784	1296	2025	?

A) 2980 B) 3025 C) 2025 D) 3026

Puzzle 8. What comes next in the sequence?

10	17	28	41	58	77	100	?

A) 106 B) 130 C) 123 D) 129

Puzzle 9. What number replaces the question mark in the grid?

5	3	4
3	6	9
5	5	?

A) 8 B) 13 C) 14 D) 20

Puzzle 10. What comes next in the sequence?

5	16	35	64	107	172	?

A) 236 B) 211 C) 274 D) 275

Answer Key

1. **C) 2304**
Formula: $n^2 \times n(n+1)/2$. n=8: 64 × 36 = 2304.

2. **A) 887**
Rule: a(n) = 2×a(n-1) + n.

3. **D) 2025**
$\Sigma k^3 = T(n)^2$ (triangular number squared).

4. **A) 1296**
$\Sigma k^3 = T(n)^2$ (triangular number squared).

5. **B) 177**
Formula: $1n^2 + 2^n$. n=7: 49 + 128 = 177.

6. **B) 16**
Row sums form arithmetic sequence: 12, 18, 24.

7. **B) 3025**
$\Sigma k^3 = T(n)^2$ (triangular number squared).

8. **D) 129**
Each term = sum of first n primes.

9. **C) 14**
Row sums form arithmetic sequence: 12, 18, 24.

10. **D) 275**
Formula: $3n^2 + 2^n$. n=7: 147 + 128 = 275.