

### Pattern Puzzles – Pack 3

**Puzzle 1.** What comes next in the sequence?

3	3	6	15	39	102	267	?
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|--------|---------|--------|---------|
| A) 801 | B) 1829 | C) 432 | D) 1830 |
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**Puzzle 2.** What comes next in the sequence?

2	7	19	50	131	343	898	?
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| A) 2694 | B) 6154 | C) 1453 | D) 6155 |
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**Puzzle 3.** What comes next in the sequence?

2	3	2	6	4	12	6	24	10	?
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|-------|-------|-------|-------|
| A) 45 | B) 49 | C) 48 | D) 16 |
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**Puzzle 4.** What comes next in the sequence?

1	2	7	18	41	84	161	294	?
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|--------|--------|--------|--------|
| A) 519 | B) 483 | C) 438 | D) 680 |
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**Puzzle 5.** What comes next in the sequence?

5	3	3	6	8	12	11	24	19	?
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|-------|-------|-------|-------|
| A) 51 | B) 48 | C) 49 | D) 30 |
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**Puzzle 6.** What comes next in the sequence?

4	2	2	6	6	18	8	54	14	?
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|--------|--------|-------|--------|
| A) 194 | B) 163 | C) 22 | D) 162 |
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**Puzzle 7.** What comes next in the sequence?

2	2	4	6	6	18	10	54	16	?
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|--------|--------|-------|--------|
| A) 163 | B) 172 | C) 26 | D) 162 |
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**Puzzle 8.** What comes next in the sequence?

3	2	3	4	6	8	9	16	15	?
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|-------|-------|-------|-------|
| A) 36 | B) 33 | C) 24 | D) 32 |
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**Puzzle 9.** What comes next in the sequence?

1	2	5	14	42	132	429	?
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|---------|---------|--------|--------|
| A) 1430 | B) 1429 | C) 396 | D) 858 |
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**Puzzle 10.** What comes next in the sequence?

4	3	5	12	31	81	212	?
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|---------|--------|--------|---------|
| A) 1453 | B) 636 | C) 343 | D) 1452 |
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## Answer Key

1. **D) 1830**

Rule:  $a(n) = 3 \times a(n-1) - a(n-2)$  (Lucas-type sequence).

2. **D) 6155**

Rule:  $a(n) = 3 \times a(n-1) - a(n-2)$  (Lucas-type sequence).

3. **C) 48**

Odd positions: Fibonacci-like sequence starting 2, 2.

4. **A) 519**

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

5. **B) 48**

Odd positions: Fibonacci-like sequence starting 5, 3.

6. **D) 162**

Odd positions: Fibonacci-like sequence starting 4, 2.

7. **D) 162**

Odd positions: Fibonacci-like sequence starting 2, 4.

8. **D) 32**

Odd positions: Fibonacci-like sequence starting 3, 3.

9. **A) 1430**

These are Catalan numbers:  $C(n) = C(n-1) \times (4n-2) / (n+1)$ .

10. **A) 1453**

Rule:  $a(n) = 3 \times a(n-1) - a(n-2)$  (Lucas-type sequence).