

Grade 5 · Patterns and Relationships · Test Answer Key

Common Core 5.OA.B.3 · mathovore.fr

This key gives full solutions and a scoring guide for each question of the patterns test, 20 points in total. Reward correct terms, correct pairs with the first pattern written first, and relationships that are checked against every pair of corresponding terms.

Grade 5 Common Core: 5.OA.B.3

Question 1: Generate two patterns (3 points)

- a. 0,4,8,12,16
- b. 0,12,24,36,48
- c. Each term of B is **3 times** the corresponding term of A, since $4 \rightarrow 12$, $8 \rightarrow 24$, $12 \rightarrow 36$, and $16 \rightarrow 48$.

Scoring: 1 point for each correct list in (a) and (b). 1 point for "3 times" in (c); "B is 8 more" earns 0 points because it does not hold for every pair.

Question 2: Complete the table (2 points)

- a. Pattern A adds 5, so the 4th term is $10+5=15$. Pattern B adds 15, so the 3rd term is $15+15=30$.
- b. Each term of B is **3 times** the corresponding term of A: $5 \rightarrow 15$, $10 \rightarrow 30$, $15 \rightarrow 45$, $20 \rightarrow 60$.

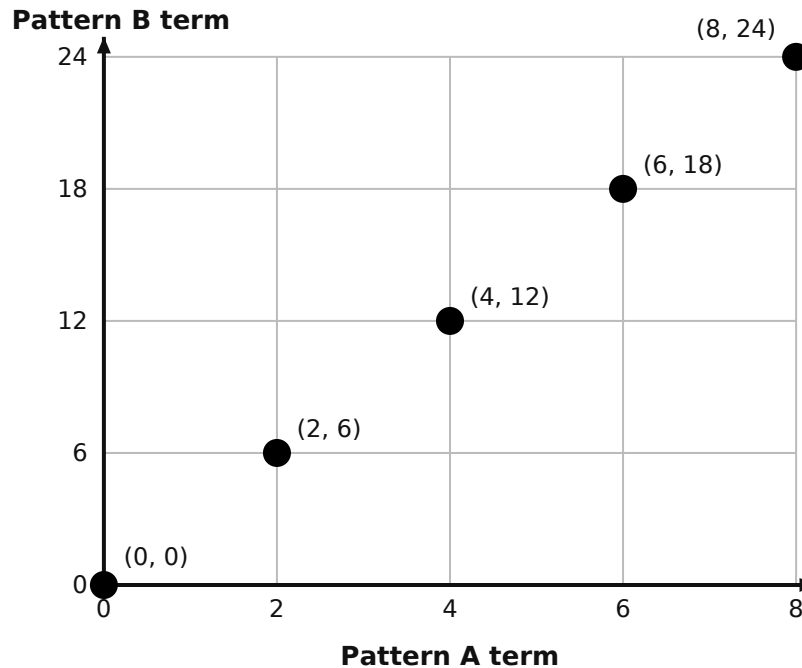
Term number	1	2	3	4	5
A	0	5	10	15	20
B	0	15	30	45	60

The completed table.

Scoring: (a) 1 point for both missing terms (15 and 30). (b) 1 point for "3 times."

Question 3: Ordered pairs and graph (3 points)

- a. (0,0),(2,6),(4,12),(6,18),(8,24)
- b. Each point is plotted by moving right the first number and up the second number.



The five plotted points.

Scoring: (a) 1 point for all five pairs with A first. (b) 2 points for plotting all five points correctly; give 1 point if three or four are correct.

Question 4: Read a graph (3 points)

- $(0,0), (3,1), (6,2), (9,3), (12,4)$
- Pattern A starts at 0 and adds 3. Pattern B starts at 0 and adds 1.
- Each term of A is **3 times** the corresponding term of B.

Scoring: (a) 1 point for all five pairs. (b) 1 point for both rules. (c) 1 point for "3 times" (accept "B is one third of A").

Question 5: Is it a pair? (2 points)

- 14 is the 8th term of A, and the 8th term of B is 28. Yes, $(14,28)$ is a pair of corresponding terms.
- 10 is the 6th term of A, and the 6th term of B is 20, not 18. No.

Scoring: 1 point for each correct decision with a supporting reason, such as B is 2 times A.

Question 6: Weekly savings (3 points)

- Aisha: 0,3,6,9,12. Ethan: 0,9,18,27,36.
- $(0,0), (3,9), (6,18), (9,27), (12,36)$
- Ethan's amount is **3 times** Aisha's amount. When Aisha has \$12, Ethan has **\$36**.

Scoring: (a) 1 point for both lists. (b) 1 point for the pairs with Aisha first. (c) 1 point for "3 times" and \$36.

Question 7: Different starting numbers (2 points)

- a. Pattern A: 1,4,7,10,13 . Pattern B: 2,8,14,20,26.
- b. $1 \rightarrow 2$, $4 \rightarrow 8$, $7 \rightarrow 14$, $10 \rightarrow 20$, $13 \rightarrow 26$. Each term of B is **2 times** the corresponding term of A.

Scoring: 1 point for each part.

Question 8: Find the mistake (2 points)

Pattern A: 0,5,10,15. Pattern B: 0,10,20,30.

- a. Mei's idea fails for the first terms ($0 \rightarrow 0$) and for $10 \rightarrow 20$, where B is 10 more. It must work for every pair.
- b. Each term of B is **2 times** the corresponding term of A.

Scoring: (a) 1 point for a counterexample or reason. (b) 1 point for "2 times."

Total
20 points