

Grade 5 · Patterns and Relationships · Worksheet Answer Key

Common Core 5.OA.B.3 · mathovore.fr

This answer key gives every term, ordered pair, and relationship for the 24 problems. Each solution lists the terms first, compares corresponding terms one pair at a time, and then states the relationship. Check your graphs against the plotted points.

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

Problem 1: Start at 0, add 3

Start at 0 and add 3 each time: $0+3=3$, $3+3=6$, $6+3=9$, $9+3=12$.

The terms are 0,3,6,9,12.

Rule: start at 0, add 3



The completed pattern.

Problem 2: Start at 0, add 5

Start at 0 and add 5 each time: $0+5=5$, $5+5=10$, $10+5=15$, $15+5=20$.

The terms are 0,5,10,15,20.

Problem 3: Start at 4, add 2

Start at 4 and add 2 each time: $4+2=6$, $6+2=8$, $8+2=10$, $10+2=12$.

The terms are 4,6,8,10,12.

Problem 4: Start at 1, add 7

Start at 1 and add 7 each time: $1+7=8$, $8+7=15$, $15+7=22$, $22+7=29$.

The terms are 1,8,15,22,29.

Problem 5: Complete the table

Pattern A adds 2: 0,2,4,6,8,10.

Pattern B adds 4: 0,4,8,12,16,20.

Term number	1	2	3	4	5	6
A: add 2	0	2	4	6	8	10
B: add 4	0	4	8	12	16	20

The completed table.

Problem 6: Add 5 and add 10

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

Pattern B: 0,10,20,30,40.

Compare corresponding terms: $5 \rightarrow 10$, $10 \rightarrow 20$, $15 \rightarrow 30$. Each term of B is **2 times** the corresponding term of A.

Problem 7: Add 3 and add 9

Pattern A: 0,3,6,9,12,15.

Pattern B: 0,9,18,27,36,45.

Compare corresponding terms: $3 \rightarrow 9$, $6 \rightarrow 18$, $9 \rightarrow 27$. Each term of B is **3 times** the corresponding term of A.

Problem 8: Add 4 and add 8

Pattern A: 0,4,8,12,16.

Pattern B: 0,8,16,24,32.

Compare corresponding terms: $4 \rightarrow 8$, $8 \rightarrow 16$, $12 \rightarrow 24$. Each term of B is **2 times** the corresponding term of A.

Problem 9: A is a multiple of B

Compare corresponding terms: $6 \rightarrow 2$, $12 \rightarrow 4$, $18 \rightarrow 6$, $24 \rightarrow 8$. Each A term divided by 3 gives the B term.

Each term of A is **3 times** the corresponding term of B. For the first terms, $3 \times 0 = 0$.

Problem 10: B is one more

Pattern A starts at 0 and adds 2. Pattern B starts at 1 and adds 2.

Compare corresponding terms: $0 \rightarrow 1$, $2 \rightarrow 3$, $4 \rightarrow 5$, $6 \rightarrow 7$, $8 \rightarrow 9$. Each term of B is **1 more** than the corresponding term of A.

Problem 11: Add 10 and add 5

Pattern A: 0,10,20,30,40.

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

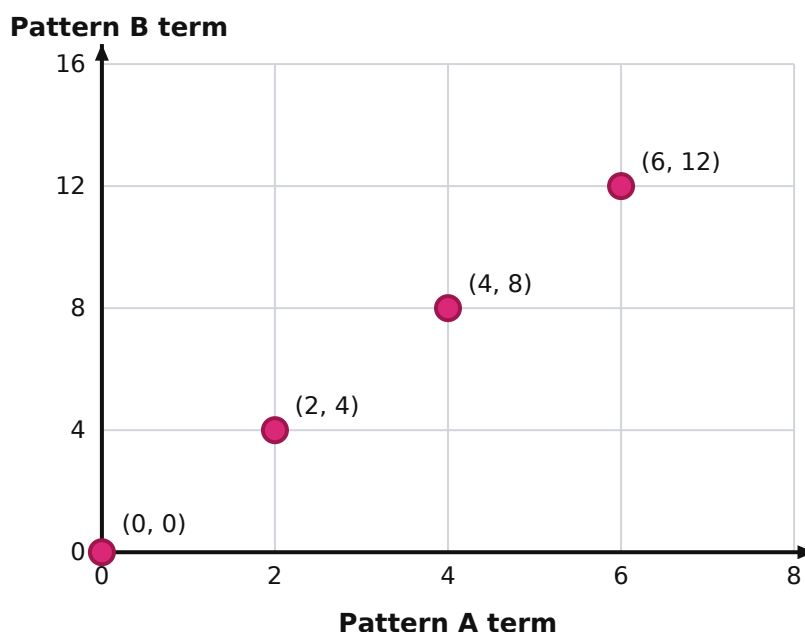
Each term of A is 2 times the term of B, so each term of B is **half** of the corresponding term of A.

Problem 12: Write ordered pairs

Write the term of A first and the term of B second: $(0,0)$, $(3,6)$, $(6,12)$, $(9,18)$.

Problem 13: Read a graph

- Read across, then up: $(0,0)$, $(2,4)$, $(4,8)$, $(6,12)$.
- The first numbers are 0,2,4,6: pattern A adds 2. The second numbers are 0,4,8,12: pattern B adds 4.
- Each second number is **2 times** the first number.

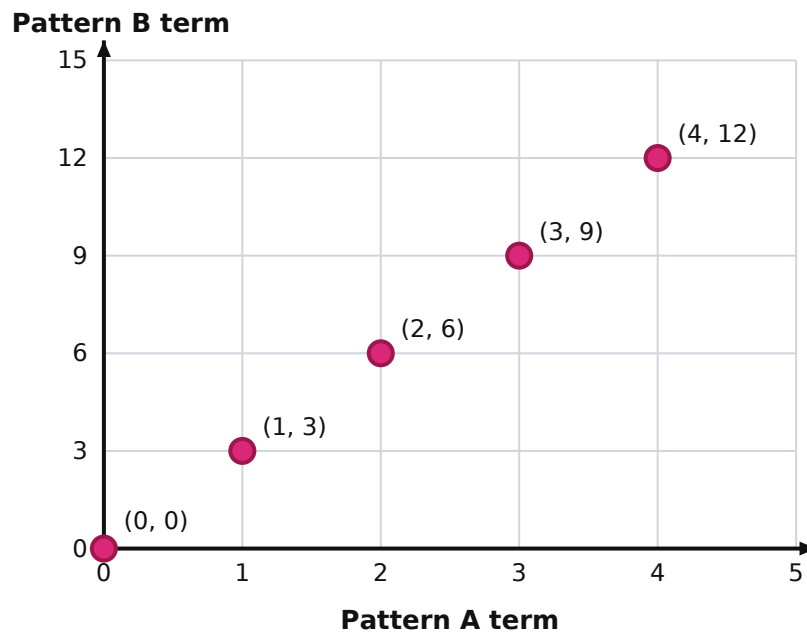


The labeled points.

Problem 14: Plot the pairs

Pattern A: 0,1,2,3,4. Pattern B: 0,3,6,9,12.

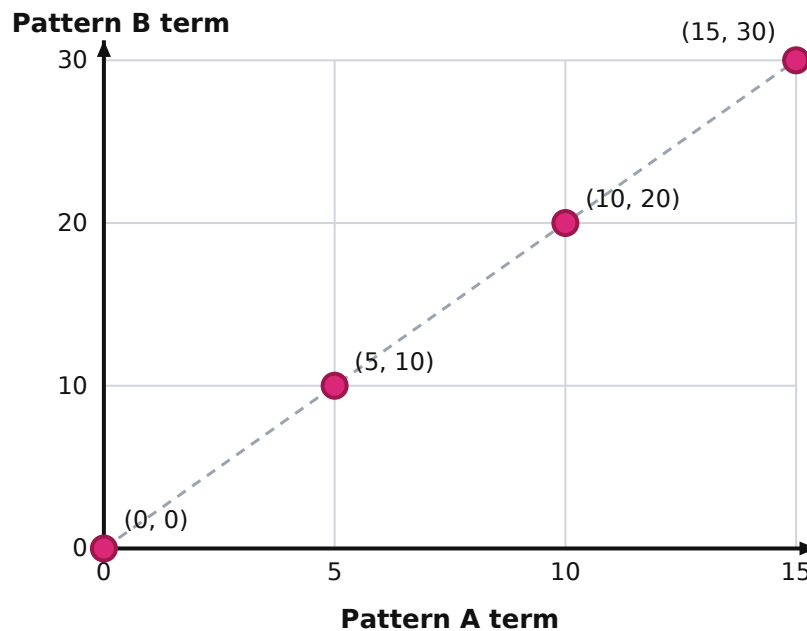
The ordered pairs are (0,0),(1,3),(2,6),(3,9),(4,12).



Each point is plotted by going right, then up.

Problem 15: Graph and describe

Pattern A: 0,5,10,15. Pattern B: 0,10,20,30. The ordered pairs are (0,0),(5,10),(10,20),(15,30).



The points rise in a straight line.

The points line up in a straight line going up. Every second number is 2 times the first number.

Problem 16: Is it a pair?

- a. 12 is the 5th term of A. The 5th term of B is 24. So **yes**, (12,24) is formed by corresponding terms.
- b. 9 is the 4th term of A. The 4th term of B is 18, not 12. So **no**.

Problem 17: Find missing terms

Pattern A adds 4, so the 4th term is $8+4=12$. Pattern B adds 8, so the 3rd term is $8+8=16$.

Check: $12 \rightarrow 24$ and $8 \rightarrow 16$ both show B as 2 times A.

The missing terms are **12 and 16**.

Problem 18: Seventh terms

Pattern A: 0,6,12,18,24,30,36. Pattern B: 0,3,6,9,12,15,18.

The 7th term of A is **36** and the 7th term of B is **18**. The A term is 2 times the B term.

Problem 19: Saving each week

Priya: 0,4,8,12,16. Diego: 0,8,16,24,32.

Each of Diego's amounts is **2 times** Priya's matching amount, because he adds twice as much each week.

Problem 20: School store packs

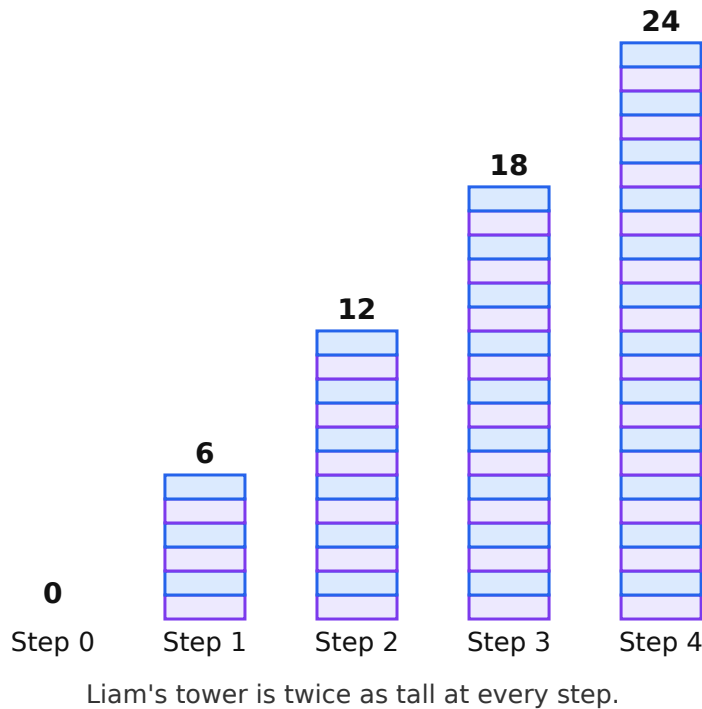
Pencils: 6,12,18,24. Erasers: 2,4,6,8.

Ordered pairs: (6,2),(12,4),(18,6),(24,8).

The number of pencils is **3 times** the number of erasers.

Problem 21: Block towers

- a. Mei: 0,3,6,9,12. Liam: 0,6,12,18,24.
- b. (0,0),(3,6),(6,12),(9,18),(12,24)
- c. Liam always has **2 times** as many blocks as Mei, because he adds twice as many each step.



Problem 22: Different starting numbers

Pattern A: 2,5,8,11,14. Pattern B: 4,10,16,22,28.

Compare: $2 \rightarrow 4$, $5 \rightarrow 10$, $8 \rightarrow 16$, $11 \rightarrow 22$, $14 \rightarrow 28$. Each term of B is **2 times** the corresponding term of A.

Problem 23: Bike miles

Noah: 0,2,4,6,8,10. Maya: 0,6,12,18,24,30.

Ordered pairs: (0,0),(2,6),(4,12),(6,18),(8,24),(10,30).

Maya's miles are 3 times Noah's miles. The pair with 8 is (8,24), so Maya has ridden **24 miles**.

Problem 24: Find the mistake

Pattern A: 0,4,8,12. Pattern B: 0,8,16,24.

Hannah's idea works for $4 \rightarrow 8$ but fails for the first terms $0 \rightarrow 0$ and for $8 \rightarrow 16$, which differ by 8. A relationship must work for every pair.

The correct relationship is that each term of B is **2 times** the corresponding term of A.