

Number Patterns and Sequences

A sequence is a list of numbers that follows a rule. Find the rule first — usually “add n ,” “subtract n ,” or “multiply by n ” — and the next numbers come easily.

Pattern type	Example
Add a fixed amount	2, 5, 8, 11, ... (add 3)
Subtract a fixed amount	30, 25, 20, 15, ... (subtract 5)
Multiply by a fixed amount	2, 4, 8, 16, ... (multiply by 2)

Key Concepts

1. A **sequence** is a list of numbers. The *rule* tells you how to get from one number to the next.
2. To find the rule, look at the difference (or ratio) between consecutive numbers. If you keep getting the same answer, that’s the rule.
3. Most Grade 3 patterns use addition or subtraction. A few are multiplication patterns (each term doubles, triples, etc.).
4. Once you know the rule, apply it again and again to extend the sequence.

Worked Examples

① Find the next two numbers: 6, 12, 18, 24, ...

 Look at the gaps: $12 - 6 = 6$, $18 - 12 = 6$, $24 - 18 = 6$. The rule is “add 6.” Apply it: $24 + 6 = 30$, then $30 + 6 = 36$. The next two numbers are 30 and 36.

 **Answer:** 30, 36

② Find the rule: 75, 65, 55, 45, ...

 Look at the gaps: $75 - 65 = 10$, $65 - 55 = 10$, and so on. The numbers are getting smaller by 10 each time, so the rule is “subtract 10.”

 **Answer:** Subtract 10

③ Find the next number: 3, 6, 12, 24, ...

 Try addition first: $6 - 3 = 3$, but $12 - 6 = 6$ — not the same. So it’s not “add n .” Try multiplication: $6 \div 3 = 2$, $12 \div 6 = 2$, $24 \div 12 = 2$. The rule is “multiply by 2.” Next number: $24 \times 2 = 48$.

 **Answer:** 48

Practice Problems

Find the next two numbers (or the rule).

1. 5, 10, 15, 20, __, __ _____

4. 100, 95, 90, 85, __, __ _____

2. 80, 70, 60, 50, __, __ _____

5. 4, 8, 16, 32, __, __ _____

3. 7, 14, 21, 28, __, __ _____

6. 9, 18, 27, 36, __, __ _____

7. 50, 46, 42, 38, ___, ___ _____

10. 200, 175, 150, 125, ___, ___ _____

8. 11, 22, 33, 44, ___, ___ _____

11. 6, 12, 18, 24, ___, ___ _____

9. 1, 3, 9, 27, ___, ___ _____

12. 64, 56, 48, 40, ___, ___ _____

Study Tips

- 👉 Compute the gap between two consecutive terms, then check that it stays the same. If it does, you found the rule.
- 👉 If the gaps change, try *multiplying* or *dividing*. Patterns that grow fast (like 3, 6, 12, 24) are usually multiplication patterns.
- 👉 Always double-check your rule by applying it to all the terms given, not just the first two.

Word Problems

1. Maya saves \$5 every week. After week 1 she has \$5, after week 2 she has \$10. How much will she have after week 6?

Answer: _____

2. A frog jumps 3 feet each time. After 1 jump it is at 3 feet, after 2 jumps at 6 feet. Where is it after 8 jumps?

Answer: _____

Answer Key — with Friendly Explanations**Practice Problems**

1. Rule: add 5. $20 + 5 = 25$, $25 + 5 = 30$.

 **Answer:** 25, 30

2. Rule: subtract 10. $50 - 10 = 40$, $40 - 10 = 30$.

 **Answer:** 40, 30

3. Rule: add 7. $28 + 7 = 35$, $35 + 7 = 42$.

 **Answer:** 35, 42

4. Rule: subtract 5. $85 - 5 = 80$, $80 - 5 = 75$.

 **Answer:** 80, 75

5. Rule: multiply by 2. $32 \times 2 = 64$, $64 \times 2 = 128$.

 **Answer:** 64, 128

6. Rule: add 9. $36 + 9 = 45$, $45 + 9 = 54$.

 **Answer:** 45, 54

7. Rule: subtract 4. $38 - 4 = 34$, $34 - 4 = 30$.

 **Answer:** 34, 30

8. Rule: add 11. $44 + 11 = 55$, $55 + 11 = 66$.

 **Answer:** 55, 66

9. Rule: multiply by 3. $27 \times 3 = 81$, $81 \times 3 = 243$.

 **Answer:** 81, 243

10. Rule: subtract 25. $125 - 25 = 100$, $100 - 25 = 75$.

 **Answer:** 100, 75

11. Rule: add 6. $24 + 6 = 30$, $30 + 6 = 36$.

 **Answer:** 30, 36

12. Rule: subtract 8. $40 - 8 = 32$, $32 - 8 = 24$.

 **Answer:** 32, 24

Word Problems

1. \$5 each week for 6 weeks: $6 \times 5 = 30$.

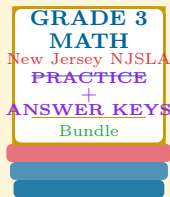
 **Answer:** \$30

2. 3 feet each jump for 8 jumps: $8 \times 3 = 24$.

 **Answer:** 24 feet

Want a Complete Grade 3 Math Program?

Check Out Our New Jersey NJSLA Grade 3 Math Bundle!



New Jersey NJSLA Grade 3 Math Bundle

Practice tests, complete answer keys, and step-by-step explanations
Everything a third grader needs to feel ready!

Tests +
Answer Keys
One Bundle

Find it online:

<https://www.effortlessmath.com/product/new-jersey-njsla-grade-3-math-made-ridiculously-simple/>

Important: This bundle combines the practice and the explanations into one easy-to-print package designed for Grade 3 students. **Made for parents, teachers, and tutors who want everything in one place.**

Full Practice Tests

- ✓ Complete NJSLA-style practice tests
- ✓ Mirrors the real exam format and difficulty
- ✓ Builds test-taking confidence
- ✓ Aligned with state Grade 3 math standards

Start with a full-length practice test!

Step-by-Step Answer Keys

- ✓ Every question worked out, not just an answer
- ✓ Friendly, third-grade-ready explanations
- ✓ Catches and explains common misconceptions
- ✓ Parents can help even without a math background

Learn from every mistake!

Single-Skill Worksheets

- ✓ Targets one Grade 3 math skill per page
- ✓ Covers place value, multiplication, fractions, measurement, geometry
- ✓ Includes a Quick Review + Practice + Word Problems
- ✓ Built-in friendly Answer Key for self-checking

Master one skill at a time!