

GRADE 5 MATHEMATICS PATTERNS & SEQUENCES

Complete Printable Worksheet Pack

● Number sequences & pattern rules

● Growing and shrinking patterns

● Missing terms & position rules

● Visual and shape patterns

● Real-life pattern reasoning

● Challenge problems

6 worksheets • Separate answer keys • A4 printable

Worksheet 1: Number Sequences & Pattern Rules

Grade 5 Mathematics

A. Continue the sequences

1. 125, 150, 175, 200, __, __

2. 960, 880, 800, 720, __, __

3. 7, 14, 28, 56, __, __

4. 2,500, 2,750, 3,000, 3,250, __, __

5. 1,000, 950, 900, 850, __, __

6. 3, 6, 12, 24, 48, __, __

B. Identify the rule

7. 45, 55, 65, 75, 85 — What is the rule?

8. 320, 300, 280, 260, 240 — What is the rule?

9. 6, 18, 54, 162 — What is the rule?

10. 1,200, 1,100, 1,000, 900 — What is the rule?

C. Think about the pattern

11. Start at 18 and add 25 each time. Write the next four terms.

12. Start at 500 and subtract 35 each time. Write the next four terms.

13. Can a sequence increase by the same amount and still contain even and odd numbers? Give an example.

Worksheet 2: Growing & Shrinking Patterns

Grade 5 Mathematics

A. Complete the sequences

18	24	30	—	42	—
500	475	—	425	400	—
3	9	27	—	243	—
1,600	1,200	—	400	—	-400

B. Identify the rules

1. Write the rule for Sequence 1.

2. Write the rule for Sequence 2.

3. Write the rule for Sequence 3.

4. Write the rule for Sequence 4.

C. Find the requested term

5. 14, 20, 26, 32, 38 — What is the 10th term?

6. Start at 250 and subtract 15. What is the 8th term?

7. Start at 5 and double each time. What is the 7th term?

8. Start at 1,000 and subtract 125 each time. Which term is 250?

Worksheet 3: Missing Terms & Position Rules

Grade 5 Mathematics

A. Complete the table

Position	1	2	3	4	5	6
Term	8	13	18	23	28	—
$5n + 3$	8	13	18	23	28	—

B. Questions

1. What is the rule for the sequence?

2. What is the 10th term?

3. What is the 20th term?

4. If the term is 103, what is its position?

C. Find the missing number

5. $__ + 17 = 52$

6. $4 \times __ = 76$

7. $__ - 28 = 95$

8. $3 \times __ + 2 = 35$

9. $5 \times __ - 4 = 46$

Worksheet 4: Visual & Shape Patterns

Grade 5 Mathematics

A. Growing pattern

Group 1



Group 2



Group 3



Group 4



1. Describe how the number of shapes changes from one group to the next.

2. How many circles are in Group 5?

3. How many shapes are in Group 5 if each group has the same number of circles and squares?

4. Write one sentence describing the growth rule.

B. Alternating pattern



5. What shape comes next?

6. If the pattern continues for 12 positions, how many circles will there be?

7. How many squares will there be?

C. Figure pattern

8. A pattern has 4, 7, 10 and 13 tiles in Figures 1–4. How many tiles are in Figure 10?

9. Another pattern starts with 2 triangles and adds 3 triangles each time. How many triangles are in Figure 8?

Worksheet 5: Patterns in Real Life

Grade 5 Mathematics

A. Saving money

A student saves \$15 in Week 1 and increases the amount saved by \$5 each week.

1. How much is saved in Week 5?

2. How much is saved altogether in Weeks 1–5?

3. How much would be saved in Week 10?

4. Write a rule for the weekly saving amount.

B. Seating pattern

A hall has 8 seats in Row 1, 12 in Row 2, 16 in Row 3 and 20 in Row 4.

5. How many seats are in Row 8?

6. How many seats are in the first 5 rows altogether?

7. How many seats are in Row 15?

8. If a row has 68 seats, which row is it?

C. Challenge

9. A delivery company packs 120 boxes on Day 1 and 30 more each day. How many boxes are packed on Day 7?

10. A plant is 12 cm tall and grows 3 cm each week. How tall will it be after 9 weeks?

Worksheet 6: Patterns & Sequences Challenge

Grade 5 Mathematics

A. Mixed sequences

1. 2, 5, 10, 17, 26, __, __ — Find the next two terms and describe the pattern.

2. 100, 96, 88, 76, 60, __ — Find the next term and explain the changes.

3. 3, 6, 12, 24, 48, __ — What is the 10th term?

4. 250, 225, 195, 160, 120, __ — Find the next term and the pattern in the differences.

B. Multiple rules

5. A sequence starts 4, 9, 14, 19. Another starts 7, 12, 17, 22. How are they related?

6. A sequence starts 5, 11, 17, 23, 29, ... What is the first term greater than 100?

7. The n th term is $3n + 4$. Is 100 a term? Show why.

8. The rule is $200 - 8n$. Which term is 120?

C. Final reasoning

9. A pattern has 6, 10, 14 and 18 tiles in Figures 1–4. A student says Figure 20 has 82 tiles. Is this correct? Explain.

10. Create your own number sequence with at least 6 terms. Give its rule and write the 7th term.

Worksheet 1 Answer Key

Answer Key

1. 225, 250.
2. 640, 560.
3. 112, 224.
4. 3,500, 3,750.
5. 800, 750.
6. 96, 192.
7. Add 10.
8. Subtract 20.
9. Multiply by 3.
10. Subtract 100.
11. 43, 68, 93, 118.
12. 465, 430, 395, 360.
13. Yes. Example: 2, 5, 8, 11, 14.

Worksheet 2 Answer Key

Answer Key

1. 36, 48.
2. 450, 375.
3. 81, 729.
4. 800, 0.
5. Add 6.
6. Subtract 25.
7. Multiply by 3.
8. Subtract 400.
9. 68.
10. 145.
11. 320.
12. 7th row.

Worksheet 3 Answer Key

Answer Key

1. Add 5; the 6th term is 33.
2. 53.
3. 103.
4. Position 20.
5. 35.
6. 19.
7. 123.
8. 11.
9. 23.
10. 5, 12, 19, 26, 33.
11. 94, 88, 82, 76, 70.
12. Position 10.

Worksheet 4 Answer Key

Answer Key

1. The number of shapes increases by one pair/group each stage; the repeating shape order is circle, square, triangle.
2. The next groups continue the same growing pattern, with the next shape types added in order.
3. 8 shapes.
4. A circle.
5. 6 circles.
6. 6 squares.
7. 31 tiles.
8. 23 triangles.

Worksheet 5 Answer Key

Answer Key

1. \$35.
2. \$125.
3. \$60.
4. Week n : $\$10 + \$5n$.
5. 36 seats.
6. 80 seats.
7. 64 seats.
8. Row 16.
9. 300 boxes.
10. 39 cm.

Worksheet 6 Answer Key

Answer Key

1. 37, 50. The differences are +3, +5, +7, +9, so the next differences are +11 and +13.
2. 40. The differences are -4, -8, -12, -16, so the next difference is -20.
3. 1,536. Each term is double the previous term.
4. 75. The differences are -25, -30, -35, -40, so the next difference is -45.
5. Both sequences increase by 5; the second sequence is always 3 greater than the first.
6. 101. The sequence increases by 6 each time, so its terms are $6n - 1$; $6 \times 17 - 1 = 101$.
7. Yes. $3n + 4 = 100$ gives $n = 32$, so 100 is the 32nd term.
8. 10th term, because $200 - 8(10) = 120$.
9. Yes. The rule is +4, so Figure 20 = $6 + 19 \times 4 = 82$.
10. Answers will vary; the rule and 7th term should match the student's sequence.