LESSON MAKER PRO

Pattern Power

Use rules to build and analyze number patterns.

GRADE 5 · 5.PAR.6

5.PAR.6 "Solve relevant problems by creating and analyzing numerical patterns using the given rule(s)."

NAME _____ DATE _____

FOLLOW THE RULE

A numerical pattern changes in the same way each time. Read the rule carefully, then apply it one step at a time to find missing terms or solve a problem.

WORKED EXAMPLE

Start at 6. Add 13 each time. Write the next three terms.

1. Start with 6.
2. 6 + 13 = 19.
3. 19 + 13 = 32.
4. 32 + 13 = 45.

Answer: 19, 32, 45

PRACTICE 6 problems

1 The rule is add 8. Complete the table: 12 -> ___, 21 -> ___, 34 -> ___.

ANSWER _____

2 The pattern rule is add 7. Complete the pattern: 8, 15, 22, ___, ___.

ANSWER _____

3 The pattern rule is subtract 4. Complete the pattern: 88, 84, 80, ___, ___.

ANSWER _____

4 The rule is multiply by 3. Complete the pattern: 1, 3, 9, 27, ___.

ANSWER _____

5 The rule is divide by 4. Complete the pattern: 256, 64, 16, ___, ___.

ANSWER _____

6 The rule is add 11. What number goes in the input box if the output is 38? ___ -> 38

ANSWER _____

APPLY IT Show your work

1 A drawing app gives Kai 17 stickers when he starts. He earns 8 more stickers each week. Write the number of stickers at the start and after each of the next four weeks. How many stickers does Kai have after four weeks?

WORK SPACE

ANSWER _____

2 In a video game, a character starts with 84 energy points. The character loses 11 energy points after each obstacle. Write the energy points at the start and after each of the next four obstacles. How much energy is left after four obstacles?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A pattern starts at 8. To find each new term, multiply the previous term by 2, then add 1. Write the next four terms. Explain how you found them.

WORK SPACE AND ANSWER

ANSWER KEY # Pattern Power

GRADE 5 · 5.PAR.6

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	The rule is add 8. Complete the table: 12 -> ___, 21 -> ___, 34 -> ___.	**20, 29, 42**
2	The pattern rule is add 7. Complete the pattern: 8, 15, 22, ___, ___.	**29, 36**
3	The pattern rule is subtract 4. Complete the pattern: 88, 84, 80, ___, ___.	**76, 72**
4	The rule is multiply by 3. Complete the pattern: 1, 3, 9, 27, ___.	**81**
5	The rule is divide by 4. Complete the pattern: 256, 64, 16, ___, ___.	**4, 1**
6	The rule is add 11. What number goes in the input box if the output is 38? ___ -> 38	**27**

PART 2 · APPLY IT

1. **17, 25, 33, 41, 49; Kai has 49 stickers after four weeks.** Start with 17 and add 8 for each new week. The pattern is 17, 25, 33, 41, 49.
2. **84, 73, 62, 51, 40; The character has 40 energy points left after four obstacles.** Start with 84 and subtract 11 after each obstacle. The pattern is 84, 73, 62, 51, 40.

CHALLENGE

17, 35, 71, 143. Each time, multiply the previous term by 2 and add 1.

Accept answers written with commas, spaces, or in a table when the numerical values are correct. For the challenge, accept any clear explanation that states or correctly shows multiplying by 2 and then adding 1.