LESSON MAKER PRO

Pattern Change Detectives

Find the rule, then fill the blanks.

GRADE 3 · 3.PFA.1.b

3.PFA.1.b "Analyze an increasing or decreasing pattern and generalize the change to extend the pattern or identify missing terms using various representations."

NAME _____ DATE _____

FIND THE CHANGE

Look at the numbers in order and find how much changes each time. Add the same amount for an increasing pattern, or subtract the same amount for a decreasing pattern.

WORKED EXAMPLE

Complete the pattern: 14, 21, 28, ____

1. 21 - 14 = 7.
2. The pattern increases by 7 each time.
3. 28 + 7 = 35.

Answer: 35

PRACTICE 6 problems

1 Complete the pattern: 5, 10, 15, ___, ___

ANSWER _____

2 Complete the pattern: 42, 37, ___, 27, ___

ANSWER _____

3 Complete the output pattern. Input: 1, 2, 3, 4 Output: 9, 12, 15, ___

ANSWER _____

4 Complete the pattern: 5, 10, ___, 20, 25, ___

ANSWER _____

5 Complete the pattern: 60, ___, 48, ___, 36

ANSWER _____

6 Complete the pattern: 3, 11, 19, ___

ANSWER _____

APPLY IT Show your work

1 Maya earns points in a reading app. She has 17 points on Monday, 22 points on Tuesday, and 27 points on Wednesday. If the pattern continues, how many points will she have on Thursday and Friday?

WORK SPACE

ANSWER _____

2 At the start of a game, Sam's tablet battery is 50%. After one round, it is 46%. Each round uses the same amount of battery. What will the battery be after two rounds and after three rounds?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A pattern starts at 81 and goes down by the same amount each time. The third number is 69. What is the fifth number? Explain how you know.

WORK SPACE AND ANSWER

ANSWER KEY

Pattern Change Detectives

GRADE 3 · 3.PFA.1.b

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Complete the pattern: 5, 10, 15, ___, ___	**20, 25**
2	Complete the pattern: 42, 37, ___, 27, ___	**32, 22**
3	Complete the output pattern. Input: 1, 2, 3, 4 Output: 9, 12, 15, ___	**18**
4	Complete the pattern: 5, 10, ___, 20, 25, ___	**15, 30**
5	Complete the pattern: 60, ___, 48, ___, 36	**54, 42**
6	Complete the pattern: 3, 11, 19, ___	**27**

PART 2 · APPLY IT

1. **32 points on Thursday and 37 points on Friday** The total increases by 5 points each day. Add 5 to 27, then add 5 again.
2. **42% after two rounds and 38% after three rounds** The battery drops by 4 percentage points each round. Subtract 4 two more times.

CHALLENGE

The pattern goes down by 6 each time. The fifth number is 57.

Accept answers with terms listed in the correct order. For the challenge, accept an explanation that identifies a decrease of 6 and gives 57.