

Pattern Power

Find the rule, then keep the pattern going.

GRADE 3 • NY-3.OA.9

NY-3.OA.9 "Identify and extend arithmetic patterns (including patterns in the addition table or multiplication table)."

NAME _____

DATE _____

FIND THE CHANGE

Look at how the numbers change from one term to the next. If the same amount is added or subtracted each time, use that rule to extend the pattern. Multiplication patterns also grow by equal amounts.

WORKED EXAMPLE

Extend the pattern: 6, 12, 18, 24, ____.

1. $12 - 6 = 6$.

2. $18 - 12 = 6$.

3. Add 6 to 24: $24 + 6 = 30$.

Answer: 30

PRACTICE 6 problems

1 Extend the pattern: 3, 7, 11, ____, 19.

ANSWER _____

2 Extend the pattern: 49, 44, 39, ____, ____.

ANSWER _____

3 Complete the multiplication pattern: $7 \times 2 = 14$, $7 \times 3 = 21$, $7 \times 4 = \underline{\hspace{1cm}}$, $7 \times 5 = \underline{\hspace{1cm}}$.

ANSWER _____

4 Complete the addition pattern: $5 + 2 = 7$, $5 + 3 = 8$, $5 + 4 = 9$, $5 + 5 = \underline{\hspace{1cm}}$.

ANSWER _____

5 Complete the multiplication pattern: $7 \times 3 = 21$, $7 \times 4 = 28$, $7 \times 5 = \underline{\hspace{1cm}}$, $7 \times 6 = \underline{\hspace{1cm}}$.

ANSWER _____

6 The sums stay the same: $22 + 1 = 23$, $21 + 2 = 23$, $20 + 3 = 23$, $19 + 4 = \underline{\hspace{1cm}}$.

ANSWER _____

APPLY IT Show your work

- 1** Maya earns 5 more stars at each new level in her game. Use the table. How many stars will she earn at Level 5?

MAYA'S GAME STARS

Level	Stars
1	11
2	16
3	21
4	26

ANSWER _____

- 2** A reading club records the pages Jordan reads each day: Monday, 13 pages; Tuesday, 17 pages; Wednesday, 21 pages. Jordan keeps the same pattern. How many pages will Jordan read on Friday?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Extend the pattern for the next three numbers. Then explain the rule: 81, 72, 63, __, __, __.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Extend the pattern: 3, 7, 11, __, 19.	15
2	Extend the pattern: 49, 44, 39, __, __.	34, 29
3	Complete the multiplication pattern: $7 \times 2 = 14$, $7 \times 3 = 21$, $7 \times 4 =$ __, $7 \times 5 =$ __.	28, 35
4	Complete the addition pattern: $5 + 2 = 7$, $5 + 3 = 8$, $5 + 4 = 9$, $5 + 5 =$ __.	10
5	Complete the multiplication pattern: $7 \times 3 = 21$, $7 \times 4 = 28$, $7 \times 5 =$ __, $7 \times 6 =$ __.	35, 42
6	The sums stay the same: $22 + 1 = 23$, $21 + 2 = 23$, $20 + 3 = 23$, $19 + 4 =$ __.	23

PART 2 • APPLY IT

- 31 stars** The number of stars increases by 5 each level. Add 5 to 26 to get 31 stars.
- 29 pages** The number of pages increases by 4 each day. Thursday is 25 pages, so Friday is 29 pages.

CHALLENGE

54, 45, 36; subtract 9 each time.

Accept a correct rule stated as “take away 9” or “subtract 9” for the challenge. For multiplication patterns, accept the products in either blank order only if each product matches its equation.