

Pattern Pathways

Find the rule, then follow the pattern.

GRADE 3 • 3.PFA.1

3.PFA.1 "The student will identify, describe, extend, and create increasing and decreasing patterns (limited to addition and subtraction of whole numbers), including those in context, using various representations..."

NAME _____

DATE _____

FIND THE CHANGE

Look at how the numbers change from one term to the next. An increasing pattern adds the same amount each time. A decreasing pattern subtracts the same amount each time.

WORKED EXAMPLE

3, 8, 13, ____, ____

1. $8 - 3 = 5$.

2. $13 - 8 = 5$.

3. The rule is add 5.

4. $13 + 5 = 18$, then $18 + 5 = 23$.

Answer: 18, 23

PRACTICE 6 problems

- 1** 6, 12, 18, ____, ____. Write the rule and the next two numbers.

ANSWER _____

- 2** 45, 39, 33, ____, ____. Write the rule and the next two numbers.

ANSWER _____

- 3** Number line hops: 10 -> 15 -> 20 -> ____ -> _____. What is the rule?

ANSWER _____

- 4** A picture pattern shows groups with 7 stars, 11 stars, 15 stars, and ____ stars. How many stars are in the next group?

ANSWER _____

- 5** 70, 60, 50, 40. Is this pattern increasing or decreasing? Describe the rule.

ANSWER _____

- 6** Create an increasing pattern with 4 terms. Start at 22 and add 7 each time.

ANSWER _____

APPLY IT Show your work

- 1** In a skateboard game, Jalen earns 14 points in Round 1, 20 points in Round 2, and 26 points in Round 3. If the pattern continues, how many points will he earn in Round 4 and Round 5?

WORK SPACE

ANSWER _____

- 2** A reading challenge chart shows 96 pages left on Monday, 87 pages left on Tuesday, and 78 pages left on Wednesday. If the pattern continues, how many pages will be left on Thursday and Friday?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

On a number line, equal left jumps go from 84 to 77 to ____ to 63 to _____. Write the missing numbers. Then explain how the direction and size of each jump match the number pattern.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	6, 12, 18, __, __. Write the rule and the next two numbers.	Add 6. 24, 30
2	45, 39, 33, __, __. Write the rule and the next two numbers.	Subtract 6. 27, 21
3	Number line hops: 10 -> 15 -> 20 -> __ -> __. What is the rule?	Add 5. 25, 30
4	A picture pattern shows groups with 7 stars, 11 stars, 15 stars, and __ stars. How many stars are in the next group?	19 stars
5	70, 60, 50, 40. Is this pattern increasing or decreasing? Describe the rule.	Decreasing. Subtract 10 each time.
6	Create an increasing pattern with 4 terms. Start at 22 and add 7 each time.	22, 29, 36, 43

PART 2 • APPLY IT

- Round 4: 32 points. Round 5: 38 points.** The points increase by 6 each round. Add 6 to 26, then add 6 again.
- Thursday: 69 pages. Friday: 60 pages.** The number of pages left decreases by 9 each day. Subtract 9 from 78, then subtract 9 again.

CHALLENGE

70, 56. Each jump moves left 7, so the pattern subtracts 7 each time.

Accept equivalent rule wording, such as "go up by 6" for "add 6." For the created pattern, accept the four terms in order with correct commas or spaces.