

Pattern Power

Build patterns that go up and down.

GRADE 3 • 3.PFA.1.d

3.PFA.1.d "Create increasing and decreasing patterns using objects, pictures, numbers, and number lines."

NAME _____

DATE _____

PATTERN RULES

An increasing pattern gets larger by following a rule. A decreasing pattern gets smaller by following a rule. Check that the change stays the same each time.

WORKED EXAMPLE

Complete the increasing pattern:
24, 30, 36, ____.

1. Look at the change from 24 to 30.
2. Add 6 each time.
3. $36 + 6 = 42$.

Answer: 42

PRACTICE 6 problems

- 1** Complete the increasing pattern: 5, 11, 17, ____.

ANSWER _____

- 2** Complete the decreasing pattern: 45, 39, 33, ____, ____.

ANSWER _____

- 3** Object pattern: ●●●●●●●●●●, ●●●●●●●●, ●●●●●. Each group has 3 fewer dots. How many dots are in the next group?

ANSWER _____

- 4** Number line pattern: 1 | 8 | 15 | ____ | ____.
Write the next two numbers.

ANSWER _____

- 5** Start at 23. Add 3 each time. Write the next four numbers.

ANSWER _____

- 6** Make a decreasing pattern. Start at 41 and subtract 8 each time. Write the next three numbers.

ANSWER _____

APPLY IT Show your work

- 1** A school recycling club collects 20 cans on Monday. It collects 7 more cans each day than the day before. Write the number of cans collected on Tuesday, Wednesday, and Thursday.

WORK SPACE

ANSWER _____

- 2** In a game, a robot begins with 50 energy points. It uses 5 energy points after each level. Write its energy points after level 1, level 2, and level 3.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A game token starts at 2 on a number line and makes 4 equal forward jumps. It lands on 34. How big is each jump? Write all five positions, including the start.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Complete the increasing pattern: 5, 11, 17, __, __.	23, 29
2	Complete the decreasing pattern: 45, 39, 33, __, __.	27, 21
3	Object pattern: ●●●●●●●●, ●●●●●●, ●●●●. Each group has 3 fewer dots. How many dots are in the next group?	2 dots
4	Number line pattern: 1 8 15 __ __. Write the next two numbers.	22, 29
5	Start at 23. Add 3 each time. Write the next four numbers.	26, 29, 32, 35
6	Make a decreasing pattern. Start at 41 and subtract 8 each time. Write the next three numbers.	33, 25, 17

PART 2 • APPLY IT

- 27, 34, 41** Start with 20 and add 7 for each new day. The pattern is 20, 27, 34, 41.
- 45, 40, 35** Start with 50 and subtract 5 after each level. The pattern is 50, 45, 40, 35.

CHALLENGE

Each jump is 8. Positions: 2, 10, 18, 26, 34.

Accept correctly ordered number sequences with or without spaces after commas. For the challenge, accept the jump size and all five positions in order.