LESSON MAKER PRO

Spot the Step

Read a pattern, then find its next term.

HIGH SCHOOL · A2.A.3.1

A2.A.3.1 "Recognize that arithmetic sequences are linear using equations, tables, graphs, and verbal descriptions. Using the pattern, find the next term."

NAME _____ DATE _____

THE BIG IDEA

An arithmetic sequence changes by the same amount from one term to the next. On a graph of term number and value, its points lie on a straight line. To find the next term, add the constant change, even when it is negative.

WORKED EXAMPLE

Use the table. Is the sequence arithmetic? Find term 4.

SEQUENCE

Term number	Value
1	41
2	48
3	55

1. 48 - 41 = 7.
2. 55 - 48 = 7, so the change is constant.
3. 55 + 7 = 62.

Answer: Yes, it is arithmetic. Term 4 is 62.

PRACTICE 6 problems

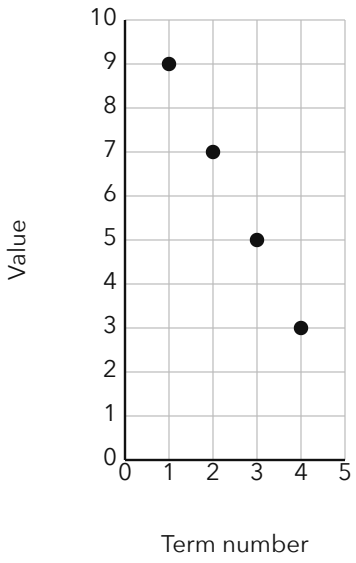
1 Use the table. Is the sequence arithmetic? Find term 5.

SEQUENCE

Term number	Value
1	3
2	8
3	13
4	18

ANSWER _____

2 The plotted points show terms 1 through 4. Is the sequence arithmetic? Find term 5.



ANSWER _____

3 A sequence has the rule $a_n = 4n + 2$. Is it arithmetic? Find a_6.

ANSWER _____

4 A sequence starts at 30 and decreases by 6 each term. Is it arithmetic? Find the term after 30, 24, 18.

ANSWER _____

5 Is 1/2, 1, 3/2, 2 an arithmetic sequence? Find the next term.

ANSWER _____

6 Is the sequence in the table arithmetic? Explain using the changes between terms.

SEQUENCE

Term number	Value
1	2
2	4
3	8
4	16

ANSWER _____

APPLY IT Show your work

1 You save $22 in week 1, $31 in week 2, and $40 in week 3. If the amount you save each week follows this pattern, how much will you save in week 4?

WORK SPACE

ANSWER _____

2 An esports team earns 125 points in round 1, 115 in round 2, and 105 in round 3. If the pattern continues, how many points will it earn in round 4?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Assume the table shows terms of an arithmetic sequence. Explain how you find the change from one term to the next. Then write a rule for a_n and find a_{10}.

SEQUENCE WITH SKIPPED TERMS

Term number	Value
2	14
5	29
8	44

WORK SPACE AND ANSWER

ANSWER KEY

Spot the Step

HIGH SCHOOL · A2.A.3.1

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Use the table. Is the sequence arithmetic? Find term 5.	**Yes, it is arithmetic. Term 5 is 23.**
2	The plotted points show terms 1 through 4. Is the sequence arithmetic? Find term 5.	**Yes, it is arithmetic. Term 5 is 1.**
3	A sequence has the rule $a_n = 4n + 2$. Is it arithmetic? Find a_6.	**Yes, it is arithmetic. $a_6 = 26$.**
4	A sequence starts at 30 and decreases by 6 each term. Is it arithmetic? Find the term after 30, 24, 18.	**Yes, it is arithmetic. The next term is 12.**
5	Is 1/2, 1, 3/2, 2 an arithmetic sequence? Find the next term.	**Yes, it is arithmetic. The next term is 5/2.**
6	Is the sequence in the table arithmetic? Explain using the changes between terms.	**No. The changes are +2, +4, and +8, so they are not constant.**

PART 2 · APPLY IT

1. **$49** The weekly amount increases by $9. Add $9 to $40 to get $49.
2. **95 points** The points decrease by 10 each round. Subtract 10 from 105 to get 95.

CHALLENGE

The value rises by 15 over 3 term numbers, so it rises by 5 per term. $a_n = 5n + 4$, and $a_{10} = 54$.

Accept equivalent explanations of a constant change. For the challenge, the table determines the rule because the prompt states that the sequence is arithmetic.