

Reteaching 11-1

Mathematical Patterns

OBJECTIVE: Finding the n th term in a sequence

MATERIALS: None

Some patterns are much easier to determine than others. Here are some tips that can help with unfamiliar patterns.

- If the terms become progressively smaller, subtraction or division may be involved.
- If the terms become progressively larger, addition or multiplication may be involved.

Example

Find the next term in this sequence: 6, 8, 11, 15, 20, ...

6 8 11 15 20

← **Spread the numbers in the sequence apart, leaving space between numbers.**

+2 +3 +4 +5

← **Beneath each space, write what can be done to get the next number in the sequence.**

In each term, the number that is added to the previous term increases by one.

← **Find a pattern.**

If the pattern is continued, the next term is $20 + 6$, or 26.

Exercises

Describe the pattern that is formed. Find the next three terms.

1. 38, 33, 28, 23, ...

2. 7, 14, 28, 56, ...

3. $-5, -7, -9, -11, \dots$

4. 2, 6, 18, 54, ...

5. 4.5, 5, 5.5, 6, ...

6. 17, 19, 23, 29, ...

Match each sequence on the left with a statement on the right.

7. 9, 15, 21, 27, ...

A. The next term in the sequence is -2 .

8. 9, 10.5, 13.5, 19.5, ...

B. The sixth term is 39.

9. 3, 2.5, 1.5, 0, ...

C. Each term is one half of the previous term.

10. $-4, 4, 12, 20, \dots$

D. Each term is two times the previous term.

11. 32, 16, 8, 4, ...

E. The fifth term is 31.5.

12. 2, 4, 8, 16, ...

F. The eighth term is 52.