Chapter Problem Wrap-Up

Student Text Page
411

Suggested Timing
15–30 min

Tools
- chart paper and markers

Related Resources
- BLM 6–13 Chapter 6 Problem Wrap-Up Rubric

Summative Assessment
- Use **BLM 6–13 Chapter 6 Problem Wrap-Up Rubric** to assess student achievement.

Using the Chapter Problem Wrap-Up

- To engage student interest in the problem, show the PowerPoint® presentation on the *Functions 11* page on the McGraw-Hill Ryerson Web site. Invite students to sketch a fractal that they found particularly interesting.
- Encourage students to research the fractal they are working on so they can see some of the fractals with many iterations completed. Other aspects of fractal geometry may be interesting to students.
- The Chapter Problem Wrap-Up is best done in pairs or groups of three. Provide students with a large sheet of chart paper on which to copy the sequence. This will give them lots of room to brainstorm with calculations and patterns as they attempt to find the next 20 terms in the sequence.

Level 3 Sample Response

a) The next 20 terms are 16, 1, 17, 9, 18, 5, 19, 10, 20, 3, 21, 11, 22, 6, 23, 12, 24, 2, 25, and 13.

b) The resulting sequence is the same as the original sequence. A recursive formula to describe this sequence could be $t_n = t_{n+2} - 1$ for odd-numbered terms. An explicit formula for the odd-numbered terms could be $t_n = \frac{1}{2}(n + 1)$.

c) The remaining sequence is identical to the original sequence. This sequence has the same formula as the original one.

d) When this procedure is repeated, the original sequence continues to result.

e) This is like a fractal because as the process is repeated, you get the same pattern over and over again.

Level 3 Notes

Look for the following:

- Determines all or most of the next 20 terms in the sequence
- Recognizes the pattern of self-similarity that emerges as they conduct the iterations on the sequence
- Sees the pattern that emerges in the odd-numbered terms and determines a formula for the sequence

What Distinguishes Level 2

- Has difficulty determining the next 20 terms in the sequence
- Is unable to recognize the pattern of self-similarity that emerges as they conduct the iterations on the sequence
- Is unable to determine a formula for any of the parts of the sequence

What Distinguishes Level 4

- Accurately determines the next 20 terms in the sequence
- Performs the iterations independently and discovers the self-similarity in this sequence
- Sees the pattern in the odd-numbered terms and develops a formula for these terms
- Accurately describes the relationship between this sequence and the geometric fractals they worked with in the previous parts of the Chapter Problem