Writing Recursive and Explicit Rules for Geometric Sequences

Write the recursive and explicit rules for each geometric sequence.

1. $20, 10, 5, \dots$

Recursive:

Explicit:

2. $3, 9, 27, 81, \dots$

Recursive:

Explicit:

3. $\frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{16}, \dots$

Recursive:

Explicit:

4. $6, -12, 24, -48, \dots$

Recursive:

Explicit:

5. $48, 16, \frac{16}{3}, \dots$

Recursive:

Explicit:

Writing Recursive and Explicit Rules for Geometric Sequences

Write the recursive and explicit rules for each geometric sequence.

1. $20, 10, 5, \dots$

Recursive: $f(n) = \frac{1}{2} \cdot f(n-1)$

Explicit: $f(n) = 20\left(\frac{1}{2}\right)^{n-1}$

2. $3, 9, 27, 81, \dots$

Recursive: $f(n) = 3 \cdot f(n-1)$

Explicit: $f(n) = 3(3)^{n-1}$

3. $\frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{16}, \dots$

Recursive: $f(n) = \frac{1}{2} \cdot f(n-1)$

Explicit: $f(n) = \frac{1}{2}\left(\frac{1}{2}\right)^{n-1}$

4. $6, -12, 24, -48, \dots$

Recursive: $f(n) = -2 \cdot f(n-1)$

Explicit: $f(n) = 6(-2)^{n-1}$

5. $48, 16, \frac{16}{3}, \dots$

Recursive: $f(n) = \frac{1}{3} \cdot f(n-1)$

Explicit: $f(n) = 48\left(\frac{1}{3}\right)^{n-1}$