

Secondary 1 ~ 4.2 Geometric Sequences

Name: _____ Period: _____

Complete each table to continue the pattern.

1.

| | | | | | | | | |
|--------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <i>Term</i> | 1 st | 2 nd | 3 rd | 4 th | 5 th | 6 th | 7 th | 8 th |
| <i>Value</i> | 2 | 4 | 8 | 16 | 32 | | | |

2.

| | | | | | | | | |
|--------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <i>Term</i> | 1 st | 2 nd | 3 rd | 4 th | 5 th | 6 th | 7 th | 8 th |
| <i>Value</i> | -3 | 9 | -27 | 81 | | | | |

3.

| | | | | | | | | |
|--------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <i>Term</i> | 1 st | 2 nd | 3 rd | 4 th | 5 th | 6 th | 7 th | 8 th |
| <i>Value</i> | 160 | 80 | 40 | 20 | | | | |

Identify the following sequences as arithmetic, geometric, or neither.

4. 2, 4, 7, 11, 16, ... _____
5. 60, 55, 50, 45, 40, ... _____
6. 1, 7, 13, 19, 25, ... _____
7. 5, 25, 125, 625, ... _____
8. 200, 100, 50, 25, ... _____
9. 5, 6, 10, 11, 20, ... _____

For each of the following geometric sequences, identify a reasonable starting value and the common ratio. Then, write the recursive and explicit formulas.

- | | | |
|---|---|--|
| <p>10. 5, 25, 125, 625, ...</p> <p>Starting Value _____</p> <p>Common Ratio _____</p> <p>Recursive _____</p> <p>Explicit _____</p> | <p>11. 2, 10, 50, 250, ...</p> <p>Starting Value _____</p> <p>Common Ratio _____</p> <p>Recursive _____</p> <p>Explicit _____</p> | <p>12. 3, 12, 48, 192, ...</p> <p>Starting Value _____</p> <p>Common Ratio _____</p> <p>Recursive _____</p> <p>Explicit _____</p> |
| <p>13. 200, 100, 50, 25, ...</p> <p>Starting Value _____</p> <p>Common Ratio _____</p> <p>Recursive _____</p> <p>Explicit _____</p> | <p>14. -4, -8, -16, -32, ...</p> <p>Starting Value _____</p> <p>Common Ratio _____</p> <p>Recursive _____</p> <p>Explicit _____</p> | <p>15. $\frac{1}{3}, \frac{1}{6}, \frac{1}{12}, \frac{1}{24}, \dots$</p> <p>Starting Value _____</p> <p>Common Ratio _____</p> <p>Recursive _____</p> <p>Explicit _____</p> |

Write the recursive and the explicit rules for the sequences.

16. 60, 55, 50, 45, 40, ...

Recursive:

Explicit:

17. 3, -30, 300, -3000, ...

Recursive:

Explicit:

18. 540, 180, 60, 20, ...

Recursive:

Explicit:

19. 1, 7, 13, 19, 25, ...

Recursive:

Explicit:

Evaluate the following equations, when $x = \{1, 2, 3, 4, 5\}$. Organize your inputs (domain) and outputs (range) into a table of values for each equation. Let x be the domain and $g(x)$, $h(x)$, $j(x)$, or $k(x)$ be the range.

20. $g(x) = 4^x$

21. $h(x) = (-3)^x$

22. $j(x) = -3^x$

23. $k(x) = 10^x$

| x | y |
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| x | y |
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| x | y |
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| x | y |
|-----|-----|
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Solve the following equations for the unknown variable.

24. $3(x - 1) = 2(x + 3)$

25. $2\left(a - \frac{1}{3}\right) = \frac{2}{5}\left(a + \frac{2}{3}\right)$

26. $3(x + 3) - 2(x - 1) = 0$