Name : _____

Recursive Formula

Sheet 1

Write the recursive formula for each geometric sequence.

1) 15, –45, 135, –405, ...

_____

2) 4, 8, 16, 32, 64, 128, ...

_____

3) $2\sqrt{3}, 4\sqrt{3}, 8\sqrt{3}, 16\sqrt{3}, 32\sqrt{3}, \ldots$

_____

4) $\frac{8}{3}, \frac{16}{9}, \frac{32}{27}, \frac{64}{81}, \frac{128}{243}, \ldots$

_____

5) 0.4, 2.4, 14.4, 86.4, ...

_____

6) –6, –30, –150, –750, –3750, ...

_____

7) $-\frac{2}{5}, \frac{8}{15}, -\frac{32}{45}, \frac{128}{135}, -\frac{512}{405}, \ldots$

_____

8) 0.3, –3.3, 36.3, –399.3, ...

_____

9) –67, 134, –268, 536, –1072, ...

_____

10) –1, –9, –81, –729, –6561, ...

_____

Name : _____ **Answer key**

Recursive Formula

Sheet 1

Write the recursive formula for each geometric sequence.

1) 15, –45, 135, –405, ...

$a_n = a_{n-1} \cdot -3$

2) 4, 8, 16, 32, 64, 128, ...

$a_n = a_{n-1} \cdot 2$

3) $2\sqrt{3}, 4\sqrt{3}, 8\sqrt{3}, 16\sqrt{3}, 32\sqrt{3}, \ldots$

$a_n = a_{n-1} \cdot 2$

4) $\frac{8}{3}, \frac{16}{9}, \frac{32}{27}, \frac{64}{81}, \frac{128}{243}, \ldots$

$a_n = a_{n-1} \cdot \frac{2}{3}$

5) 0.4, 2.4, 14.4, 86.4, ...

$a_n = a_{n-1} \cdot 6$

6) –6, –30, –150, –750, –3750, ...

$a_n = a_{n-1} \cdot 5$

7) $-\frac{2}{5}, \frac{8}{15}, -\frac{32}{45}, \frac{128}{135}, -\frac{512}{405}, \ldots$

$a_n = a_{n-1} \cdot -\frac{4}{3}$

8) 0.3, –3.3, 36.3, –399.3, ...

$a_n = a_{n-1} \cdot -11$

9) –67, 134, –268, 536, –1072, ...

$a_n = a_{n-1} \cdot -2$

10) –1, –9, –81, –729, –6561, ...

$a_n = a_{n-1} \cdot 9$

Name : _____

Recursive Formula

Sheet 2

Write the recursive formula for each geometric sequence.

1) $-0.2, -1.6, -12.8, -102.4, \ldots$

2) $\frac{3}{4}, -\frac{1}{6}, \frac{1}{27}, -\frac{2}{243}, \frac{4}{2187}, \ldots$

3) $70, -350, 1750$ [illegible] $912, \ldots$

5) $18, 72, 288, 11$ [illegible] $, 2229.5, 15606.5, \ldots$

7) $-3, -45, -675,$ [illegible] $8\sqrt{5}, 56\sqrt{5}, \ldots$

9) $-\frac{1}{2}, -\frac{7}{10}, -\frac{49}{50}, -\frac{343}{250}, -\frac{2401}{1250}, \ldots$

10) $-1, -17, -289, -4913, -83521, \ldots$

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Name : _____ **Answer key**

Recursive Formula

Sheet 2

Write the recursive formula for each geometric sequence.

1) $-0.2, -1.6, -12.8, -102.4, \ldots$

$a_n = a_{n-1} \cdot 8$

2) $\frac{3}{4}, -\frac{1}{6}, \frac{1}{27}, -\frac{2}{243}, \frac{4}{2187}, \ldots$

$a_n = a_{n-1} \cdot -\frac{2}{9}$

3) 70, –350, 1750 … 912, …

$a_n =$ … $a_{n-1} \cdot -12$

5) 18, 72, 288, 11… , 2229.5, 15606.5, …

$a_n =$ … $= a_{n-1} \cdot 7$

7) –3, –45, –675, … $8\sqrt{5}, 56\sqrt{5}, \ldots$

$a_n = a_{n-1} \cdot 15$

$a_n = a_{n-1} \cdot -2$

9) $-\frac{1}{2}, -\frac{7}{10}, -\frac{49}{50}, -\frac{343}{250}, -\frac{2401}{1250}, \ldots$

$a_n = a_{n-1} \cdot \frac{7}{5}$

10) $-1, -17, -289, -4913, -83521, \ldots$

$a_n = a_{n-1} \cdot 17$

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Name : _____

Recursive Formula

Sheet 3

Write the recursive formula for each geometric sequence.

1) 2, 30, 450, 6750, ...

2) 8.4, –25.2, 75.6, –226.8, 680.4, ...

3) $\frac{5}{9}, \frac{25}{18}, \frac{125}{36}, \frac{62}{7}$ ... -1125, ...

5) 0.8, 3.2, 12.8, 5 ... 38, 196608, ...

7) 14, –112, 896, ... 4, 19008, ...

9) $-6\sqrt{7}, -12\sqrt{7}, -24\sqrt{7}, -48\sqrt{7}, -96\sqrt{7}, \ldots$

10) $\frac{1}{4}, -\frac{1}{6}, \frac{1}{9}, -\frac{2}{27}, \frac{4}{81}, \ldots$

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Name : _____ **Answer key**

Recursive Formula

Sheet 3

Write the recursive formula for each geometric sequence.

1) 2, 30, 450, 6750, ...

$a_n = a_{n-1} \cdot 15$

2) 8.4, –25.2, 75.6, –226.8, 680.4, ...

$a_n = a_{n-1} \cdot -3$

3) $\frac{5}{9}, \frac{25}{18}, \frac{125}{36}, \frac{62}{7}$ -1125, ...

$a_n =$ $: a_{n-1} \cdot 5$

5) 0.8, 3.2, 12.8, 5 38, 196608, ...

$a_n =$ $a_{n-1} \cdot 16$

7) 14, –112, 896, 4, 19008, ...

$a_n = a_{n-1} \cdot -8$

$a_n = a_{n-1} \cdot -12$

9) $-6\sqrt{7}, -12\sqrt{7}, -24\sqrt{7}, -48\sqrt{7}, -96\sqrt{7}, \ldots$

$a_n = a_{n-1} \cdot 2$

10) $\frac{1}{4}, -\frac{1}{6}, \frac{1}{9}, -\frac{2}{27}, \frac{4}{81}, \ldots$

$a_n = a_{n-1} \cdot -\frac{2}{3}$

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Name : _____

Recursive Formula

Sheet 4

Write the recursive formula for each geometric sequence.

1) $-\frac{3}{8}, -\frac{1}{2}, -\frac{2}{3}, -\frac{8}{9}, \ldots$

2) $150, -300, 600, -1200, \ldots$

3) $-2, 38, -722, 1$ … $91.6, 2624.4, \ldots$

5) $-18, -72, -288$ … $430, 7290, \ldots$

7) $6, 78, 1014, 13$ … $\frac{1}{540}, \ldots$

9) $-0.2, 1, -5, 25, -125, \ldots$

10) $25, 25\sqrt{2}, 50, 50\sqrt{2}, \ldots$

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Name : _____ **Answer key**

Recursive Formula

Sheet 4

Write the recursive formula for each geometric sequence.

1) $-\frac{3}{8}, -\frac{1}{2}, -\frac{2}{3}, -\frac{8}{9}, \ldots$

$a_n = a_{n-1} \cdot \frac{4}{3}$

2) 150, –300, 600, –1200, ...

$a_n = a_{n-1} \cdot -2$

3) –2, 38, –722, 1 91.6, 2624.4, ...

$a_n =$ $: a_{n-1} \cdot 9$

5) –18, –72, –288 430, 7290, ...

$a_n =$ $: a_{n-1} \cdot 3$

7) 6, 78, 1014, 13 $\frac{1}{540}, \ldots$

$a_n = a_{n-1} \cdot 13$ $: a_{n-1} \cdot \frac{1}{6}$

9) –0.2, 1, –5, 25, –125, ...

$a_n = a_{n-1} \cdot -5$

10) $25, 25\sqrt{2}, 50, 50\sqrt{2}, \ldots$

$a_n = a_{n-1} \cdot \sqrt{2}$

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Name : _____

Recursive Formula

Sheet 5

Write the recursive formula for each geometric sequence.

1) $\frac{1}{\sqrt{3}}, \frac{6}{\sqrt{3}}, \frac{36}{\sqrt{3}}, \frac{216}{\sqrt{3}}, \ldots$

2) $-77, 231, -693, 2079, \ldots$

3) $40, 280, 1960,$ [illegible] $-8748, 78732, \ldots$

5) $\frac{7}{2}, \frac{21}{4}, \frac{63}{8}, \frac{189}{16}$ [illegible] $00, -10800, \ldots$

7) $-1.3, -9.1, -63.$ [illegible] $-32768, 262144, \ldots$

9) $84.2, -168.4, 336.8, -673.6, 1347.2, \ldots$

10) $\frac{10}{3}, \frac{2}{3}, \frac{2}{15}, \frac{2}{75}, \ldots$

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Name : _____ **Answer key**

Recursive Formula

Sheet 5

Write the recursive formula for each geometric sequence.

1) $\frac{1}{\sqrt{3}}, \frac{6}{\sqrt{3}}, \frac{36}{\sqrt{3}}, \frac{216}{\sqrt{3}}, \ldots$

$a_n = a_{n-1} \cdot 6$

2) $-77, 231, -693, 2079, \ldots$

$a_n = a_{n-1} \cdot -3$

3) 40, 280, 1960, -8748, 78732, ...

$a_n =$ $a_{n-1} \cdot -9$

5) $\frac{7}{2}, \frac{21}{4}, \frac{63}{8}, \frac{189}{16}$ 00, −10800, ...

$a_n =$ $= a_{n-1} \cdot 6$

7) −1.3, −9.1, −63. −32768, 262144, ...

$a_n = a_{n-1} \cdot 7$

$a_n = a_{n-1} \cdot -8$

9) 84.2, −168.4, 336.8, −673.6, 1347.2, ...

$a_n = a_{n-1} \cdot -2$

10) $\frac{10}{3}, \frac{2}{3}, \frac{2}{15}, \frac{2}{75}, \ldots$

$a_n = a_{n-1} \cdot \frac{1}{5}$

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