Name: _____ Period: _____ Date: _____

Geometric Sequences Bell Work

The first three terms of the geometric sequence are given. Find the next three terms.

1. 1,5,25,....

2. 6,12,24,....

Given the first term and the common ratio find the 5th term of the following Sequences:

3: $a = \frac{1}{2}; r = 4$

4. $a = -3; r = 6$

Given the first term and the common ratio find the sum of the first 6 terms of the following sequence:

5. $a = \frac{1}{4}; r = 2$

6. $a = -6; r = 3$

Solve the following problems involving geometric sequence:

7. Find the sum of the first six terms of the geometric sequence 2,6,18,.....

8. Find the first term of the geometric sequence with a common ratio of -3 and eight term of -81.

9. The length of the path of the first swing of the bob of a pendulum is 20 cm. each succeeding swing is only 0.9 as long as the preceding one. How far will the bob travel in the fifth swing?

10. Find the sum of infinite geometric sequence 12, 6, 3,...

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Geometric Sequences Bell Work

Answers:

The first three terms of a geometric sequence is given. Find the next three terms.

1. 1,5,25,....

Answers:
125,625 and3125

2. 6,12,24,....

Answers:
48, 96 and 192

Given the first term and the common ratio find the 5th term of the following Sequence:

3: $a = \frac{1}{2}; r = 4$

Answer:
$a_5 = \left(\frac{1}{2}\right)(4)^{5-1} = 128$

4. $a = -3; r = 6$

Answer:
$a_5 = (-3)(6)^{5-1} = -3888$

Given the first term and the common ratio find the sum of the first 6 terms of the following sequence:

5.$a = \frac{1}{4}; r = 2$

Answer:
$S = \left(\frac{1}{4}\right)\frac{(1-(2)^6)}{(1-2)} = \left(\frac{1}{4}\right)\frac{(-63)}{(-1)} = \frac{63}{4}$

6. $a = -6; r = 3$

Answer:
$S = (-6)\frac{(1-(3)^6)}{(1-3)} = (-6)\frac{(-728)}{(-2)} = -2184$

Solve the following problems involving geometric sequence:

7. Find the sum of the first six terms of the geometric sequence 2,6,18,.....

Given:

a = 2; r = 3; n = 6

Answer:

$S = (2)\frac{(1-(3)^6)}{(1-3)} = (2)\frac{(-728)}{(-2)} = 728$

8. Find the first term of the geometric sequence with a common ratio of -3 and eight term of -81.

Given:

$a_8 = 81; r = -3; n = 8$

Answer:

$81 = a(-3)^{8-1}$

$81 = -2187a$

$a = -\frac{1}{27}$

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Geometric Sequences Bell Work

9. The length of the path of the first swing of the bob of a pendulum is 20 cm. Each succeeding swing is only 0.9 as long as the preceding one. How far will the bob travel in the fifth swing?

Given:

a =20; r =0.9; n = 5

Answer:

$a_5 = (20)(0.9)^{5-1} = 13.122\ cm$

10. Find the sum of infinite geometric sequence 12, 6, 3,...

Given:

A=12; r= $1/2$

Answer:

$$S = \frac{12}{\left(1 - \frac{1}{2}\right)} = \frac{12}{\frac{1}{2}} = 2(12) = 24$$