Algebra 1 7.7

Identify and generate geometric sequences

Relate geometric sequences to exponential functions

sequence

arithmetic sequence (3.5) +

geometric sequence ×

common ratio r =

whiteboards

$\text{first} \left(\text{rule}\right)^{n-1}$

3, 6, 12, 24, 48...

yes $\times 2$

first term:

common ratio (r):

look for patterns

$$y = 3(2)^{n-1}$$

$$= 3(2)^{11}$$

$$= 6144$$

The second term of a geometric sequence is 15 and the third term is 45. What is the 10th term?

1st 2nd 3rd

5 ? , 15 , 45 $r = 3$

$? \cdot 3 = 15$

$\frac{?}{3} = \frac{15}{3}$

$y = 5(3)^{n-1}$

$5(3)^{9}$

$98{,}415$

ICE WS

Write the equation for the geometric sequence:

1 3 9 27 54...

100 50 25 12.5...

2 3 4.5 6.75...

What is the 27th term?

3 6 12 24 48...