

Warm Up: Pre-Calc

9/10

Find the next term, write the explicit form and find  $a_{15}$ .

1) 3, 9, 27, ...

2) 2, 3, 4.5, ...

Feb 27-7:39 AM

Solutions to Warm Up: Pre-Calc

1) 3, 9, 27, **81**       $a_{15} = 3 \cdot 3^{14} = 14,348,907$

2) 2, 3, 4.5, **6.75**       $a_{15} = 2 \cdot (3/2)^{14} = 583.8585$

20  
5

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Solutions to P.W.: pg. 22 #7 - 13

7) Geometric multiplies and arithmetic adds

8) 2.5, 7.5, 202.5

9) I:  $a_1 = -5, r = 3$

$$a_n = -5 \cdot 3^{n-1}$$

$$a_{15} = -23,914,845$$

IV:  $a_1 = 6, r = -1.5$

$$a_n = 6 \cdot (-1.5)^{n-1}$$

$$a_{15} = 1,751.576$$

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Solutions to P.W.: pg. 22 #7 - 13

10)  $x = 2$  or  $x = 8$

11)  $a_1 = 20$

12)  $n = 8$

13) \$420.18

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W.A.L.T.:

Day 9

Calculate the sum of a finite geometric series.

W.A.S.I.:

We can determine the common ratio of a geometric sequence, write an expression and calculate the partial sum of the finite series.

Mar 7-9:45 AM

### Notes!!! Finite Vs. Infinite

Finite: Has an end. Can be measured. We know how many there are.

Infinite: Has (an) no end. Can not be measured. We don't know how many there are.

Mar 7-1:33 PM

**Notes!!!** Geometric Series

A geometric series also adds up all the terms in the geometric sequence.

Formula:  
finite  $\rightarrow S_n = \frac{a_1(1 - r^n)}{1 - r}$

$S_{12}$

Mar 7-1:33 PM

**In Class Work:**Find  $S_{12}$ .

- 1) 2, 6, 18, 54, ...
- 2) -2, 10, -50, 250, ...
- 3) 3, 18, 108, 648, ...

Mar 7-1:33 PM

**In Class Work:**

pg. 26 #10 - 12

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Today's Activities:

- Notes Geometric series

P.W. for tonight:

- pg. 26 #10, 12 - 17

Day 9

Feb 27-7:23 AM

**Check Your Understanding**

10. Find the sum of the first 5 terms of the geometric sequence if  $a_2 = 8$  and  $a_3 = 10$ . Show your work.
11. Find the sum of the areas of the first 10 right triangles in Shelly's design. Show your work.
12. Shelly sends an email to three customers to invite them to a sale. The customers each forward the email to three of their friends. If this pattern continues, find the total number of emails sent after an email was forwarded six times.

Sep 10-11:28 AM

**LESSON 2-2 PRACTICE**

13. **Make use of structure.** For the geometric sequence  $a_n = \left(\frac{1}{2}\right)^n$ ,  $S_2 = \frac{3}{4}$ ,  $S_3 = \frac{7}{8}$ , and  $S_4 = \frac{15}{16}$ , predict  $S_5$  and  $S_6$ .
14. Write a general term,  $S_n$ , for the geometric sequence above.
15. Find the sum of the first eight terms of the geometric sequence whose first term is  $-2.5$  and ratio is  $2$ .
16. **Attend to precision.** Evaluate  $\sum_{k=0}^9 6(1.5)^k$ . Round to the nearest hundredth.
17. Express the sum in Item 15 using sigma notation.

Sep 10-11:28 AM