

Name \_\_\_\_\_  
8A; Algebra 1

Date \_\_\_\_\_  
Period \_\_\_\_\_

Homework

1) Determine whether each of the following sequences is arithmetic, geometric or neither. Explain your decisions.

- a) -4, 1, 6, 11, ...
- b) 2, 8, 32, 128, ...
- c) 1.5, 4.5, 13.5, 40.5, ...

2) For each of the following geometric sequences, find the common ratio. Then write the explicit formula for the sequence.

- a) 10, 20, 40, 80, ...
- b) 7, -7, 7, -7, ...
- c) 100, 50, 25, 12.5, ...

3) What is the 14<sup>th</sup> term of the geometric sequence: 3, 9, 27, 81, ...

4) What is the 11<sup>th</sup> term of the sequence: -2, 10, -50, 250, ...

5) What is the 8<sup>th</sup> term of the following sequence: 1, 3, 9, 27, ...

6) Given the first term and the common ratio, find the first four terms and the explicit formula for the following. :  $a_1 = 1, r = 2$

7) The first term of a geometric sequence is  $-0.25$  and the common ratio is  $-8$ . Find the 7<sup>th</sup> term.

8) Round 1 of a tennis tournament starts with 128 players. After each round, half the players have lost and are eliminated from the tournament. Therefore, in round 2 there are 64 players, in round 3 there are 32 players and so on. Decide if this scenario describes an arithmetic or geometric sequence. Then, write the formula for the sequence.

9) Gabe and Erik are finding the 9<sup>th</sup> term of the geometric sequence:  $-5, 10, -20, \dots$ . Is either of them correct? Explain.

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|--------------------------|
| <b>Gabe</b>              |
| $r = \frac{10}{-5} = -2$ |
| $a_9 = -5(-2)^{9-1}$     |
| $= -5(512)$              |
| $= -2560$                |

|                          |
|--------------------------|
| <b>Erik</b>              |
| $r = \frac{10}{-5} = -2$ |
| $a_9 = -5(-2)^{9-1}$     |
| $= -5(-256)$             |
| $= 1280$                 |