**PC12 LG6A (Formative Assessment 2019)**

**Marking Teacher: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

 **Student #: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**1. Determine if the sequence is geometric. If it is, find the common ratio, the 8th term, and the explicit formula.**

$a) -1, -3, -9, -27,… b) 2, \frac{1}{2}, \frac{1}{8}, \frac{1}{32}, …$

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**2. Find the missing term or terms in each geometric sequence.**

 ***a)* …, 4, \_\_\_\_, \_\_\_\_, 108, … *b)* …, -25, \_\_\_\_, \_\_\_\_, \_\_\_\_,** $-\frac{1}{25}$**, …**

$ $

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**3. Find the first term of the geometric sequence that has a fourth term of 40 and**

 **a common ratio of 2.**

**4. Find the sum of each geometric series.**

$ a) find s\_{6} for 2, -6, 18, …$$b) 30+20+\frac{40}{3}+…+ \frac{1280}{729}$

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**5. Suppose that five people are ill during the first week of an epidemic and each sick person spreads the contagious disease to four other people by the end of the second week and so on. By the end of the 15th week, how many people will be affected by the epidemic.**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**6. A gardener wanted to reward a worker for their good deeds by giving them some apples. The gardener gave the worker two choices. You can either have 1000 apples at once or you could get 1 apple on the first day, 2 apples on the second day, 4 on the third day, 8 on the fourth day and so on for the next ten days. Which option gets the maximum apples?**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Directions: |  | **See me about this** |  | **Move on to next guide** |  | **Review and redo** |

**PC12 LG 6B (Formative Assessment)**

**Marking Teacher: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

 **Student #: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**1. Determine if the sequence is geometric. If it is, find the common ratio, the 8th term, and the explicit formula.**

$a) 5, 1, \frac{1}{5}$**,** $ \frac{1}{25}$**, …** $ b) 2, 5, 8, 11,$ **…**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**2. Find the missing term or terms in each geometric sequence.**

 ***a)* …, 1, \_\_\_\_, \_\_\_\_, -64, … *b)* …,**$ \frac{2}{9}$ **, \_\_\_\_, \_\_\_\_, \_\_\_\_, 18 …**

$ $

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**3. Find the first term of the geometric sequence that has a fourth term of 24 and**

 **a common ratio of -2.**

**4. What is** $S\_{5}$ **for a geometric series where** $t\_{1}=4$ **and** $t\_{10}=78,732?$

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**5. A culture initially has 4000 bacteria, and the number increases by 5% every hour.**

 **a) Write out the first four terms of the series.**

 **b) How many bacteria are present at the end of 8 h?**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**6. An owner of a company wanted to reward a worker for their good deeds by giving them money. The owner gave the worker two choices. You can either have $10,000 at once or you could get $1 on the first day, $3 on the second day, $9 on the third day, $27 on the fourth day and so on for the next nine days. Which option is better and by how much money?**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Directions: |  | **See me about this** |  | **Move on to next guide** |  | **Review and redo** |