

SM 1 Chapter 6B Practice Quiz

Name _____

Date _____

Period _____

Find the next three terms in the following geometric sequences. Then identify the common ratio and write an equation for the n th term of the sequence (explicit formula).

1.) $\frac{1}{3}, 2, 12, 72, \dots$

Next three terms:

$$432, 2592, 15552$$

Common ratio (r):

$$r = 6$$

Explicit Formula:

$$a_n = \frac{1}{3}(6)^{n-1}$$

Find a_6

$$2592$$

2.) $36, 6, 1, \dots$

Next three terms:

$$\frac{1}{6}, \frac{1}{36}, \frac{1}{216}$$

Common ratio (r):

$$r = \frac{1}{6}$$

Explicit Formula:

$$a_n = 36\left(\frac{1}{6}\right)^{n-1}$$

Find a_7

$$\frac{1}{1296}$$

3.) $75, 15, 3, \frac{3}{5}, \dots$

Next three terms:

$$\frac{3}{25}, \frac{3}{125}, \frac{3}{625}$$

Common ratio (r):

$$r = \frac{1}{5}$$

Explicit Formula:

$$a_n = 75\left(\frac{1}{5}\right)^{n-1}$$

Find a_5

$$\frac{3}{25}$$

4.) $2, -6, 18, \dots$

Next three terms:

$$-54, 162, -486$$

Common ratio (r):

$$r = -3$$

Explicit Formula:

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

Find a_8

$$-4734$$

Use the following sequence equations to fill in the blanks in the table below:

$$a_n = d(n-1) + a_1$$

$$a_n = a_1(r)^{n-1}$$

$$a_n = ra_{n-1}$$

$$a_n = a_{n-1} + d$$

5.)

	Arithmetic	Geometric
Explicit	$a_n = d(n-1) + a_1$	$a_n = a_1(r)^{n-1}$
Recursive	$a_n = a_{n-1} + d$	$a_n = r \cdot a_{n-1}$

6.) When writing a recursive rule/formula, what do you need to write besides the $a_n = \dots a_{n-1} \dots$ part?

state the first term! ($a_1 = \underline{\hspace{2cm}}$)

Use the recursive rule to write the first six terms of the sequence.

7.) $a_1 = 3, a_n = a_{n-1} + 4$

3, 7, 11, 15, 19, 23

What type of sequence is this?

Arithmetic

8.) $a_1 = 8000, a_n = \frac{1}{2}a_{n-1}$

8000, 4000, 2000, 1000, 500, 250

What type of sequence is this?

Geometric

Determine whether each sequence is *geometric* or *arithmetic* and identify the common ratio or difference. Then write the explicit formula and a recursive rule for the sequence.

9.) 8, 3, -2, -7, -12, ...

10.) 48, 12, 3, ...

Geometric or Arithmetic

Geometric or Arithmetic?

Common ratio/difference: $d = -5$

Common ratio/difference: $r = \frac{1}{4}$

Recursive Rule:

$$a_1 = 8$$

Recursive Rule:

$$a_1 = 48$$

$$a_n = a_{n-1} - 5$$

$$a_n = \frac{1}{4} a_{n-1}$$

Explicit Formula:

$$a_n = -5n + 13$$

Explicit Formula:

$$a_n = 48\left(\frac{1}{4}\right)^{n-1}$$

(simplified from
 $a_n = -5(n-1) + 8$)

11.) 4, 20, 100, 500, 2500, ...

12.) -76, -50, -24, ...

Geometric or Arithmetic?

Geometric or Arithmetic?

Common ratio/difference: $r = 5$

Common ratio/difference: $d = 26$

Recursive Rule:

$$a_1 = 4$$

Recursive Rule:

$$a_1 = -76$$

$$a_n = 5a_{n-1}$$

$$a_n = a_{n-1} - 26$$

Explicit Formula:

$$a_n = 5(4)^{n-1}$$

Explicit Formula:

$$a_n = 26n - 102$$

(simplified from $a_n = 26(n-1) - 76$)