

Name: _____ Date: _____ Period: _____

not a big jump

big jump

Arithmetic and Geometric Sequences Practice - Explicit

1) 10, 20, 40, 80, ? *big jump so check geometric 1st*

a) Is it Arithmetic or Geometric? GEOMETRIC $r = 2$ $\frac{20}{10} = 2$ $\frac{40}{20} = 2$

b) Find the next term in table: $80 \times 2 = 160$ $\frac{80}{40} = 2$

c) Write the Explicit Rule: $a_n = 10(2)^{n-1}$

d) Find the 8th term: $a_8 = 10(2)^{8-1}$
 $a_8 = 1280$

2) 40, 200, 1000, 5000, ? *big jump*

a) Is it Arithmetic or Geometric? GEOMETRIC $r = 5$ $\frac{200}{40} = 5$ $\frac{1000}{200} = 5$

b) Find the next term in table: $5000 \times 5 = 25,000$ $\frac{5000}{1000} = 5$

c) Write the Explicit Rule: $a_n = 40(5)^{n-1}$

d) Find the 6th term: $a_6 = 40(5)^{6-1}$
 $a_6 = 125,000$

3) 9, 10, 11, 12, ? *not a big jump so check arithmetic 1st*

a) Is it Arithmetic or Geometric? ARITHMETIC $d = 1$ $10 - 9 = 1$
 $11 - 10 = 1$
 $12 - 11 = 1$

b) Find the next term in table: $12 + 1 = 13$

c) Write the Explicit Rule: $a_n = 9 + 1(n-1)$ distribute 1
 $a_n = 9 + n - 1$ combine like terms
 $a_n = n + 8$

d) Find the 20th term: $a_{20} = 20 + 8$
 $a_{20} = 28$

4) 16, 64, 256, 1024, ? *big jump*

a) Is it Arithmetic or Geometric? GEOMETRIC $r = 4$ $\frac{64}{16} = 4$ $\frac{256}{64} = 4$

b) Find the next term in table: $1024 \times 4 = 4096$ $\frac{1024}{256} = 4$

c) Write the Explicit Rule: $a_n = 16(4)^{n-1}$

d) Find the 10th term: $a_{10} = 16(4)^{10-1}$
 $a_{10} = 4,194,304$

5) -2, -5, -8, -11, ? not a big jump

Should be negative b/c # are getting smaller

a) Is it Arithmetic or Geometric?: ARITHMETIC

$d = -5 - -2 = -3$
 $-8 - -5 = -3$
 $-11 - -8 = -3$

b) Find the next term in table: -14

c) Write the Explicit Rule: $a_n = -2 - 3(n-1)$

$a_n = -2 - 3n + 3$
 $a_n = -3n + 1$

d) Find the 13th term: $a_{13} = -3(13) + 1$

$a_{13} = -38$

6) 6, 10, 14, 18, ?

a) Is it Arithmetic or Geometric?: ARITHMETIC $d = 4$

10-6=4
14-10=4
18-14=4
Should be + b/c # are getting bigger

b) Find the next term in table: 22

$a_n = 6 + 4(n-1)$ distribute 4

c) Write the Explicit Rule: $a_n = 6 + 4n - 4$ combine like terms

$a_n = 4n + 2$

d) Find the 25th term: $a_{25} = 4(25) + 2$

$a_{25} = 102$

7) 8, 3, -2, -7, ? Not a big jump

Should be - b/c # are getting smaller
 $d = -5$

a) Is it Arithmetic or Geometric?: ARITHMETIC

$3 - 8 = -5$
 $-2 - 3 = -5$
 $-7 - -2 = -5$

b) Find the next term in table: -12

c) Write the Explicit Rule: $a_n = 8 - 5(n-1)$ distribute -5
 $a_n = 8 - 5n + 5$ combine like terms

$a_n = -5n + 13$

d) Find the 50th term: $a_{50} = -5(50) + 13$

$a_{50} = -237$