Algebra 1: 4.2 Homework - Part 2 **Name** _____ **Period** _____
Geometric Sequences

Find the common ratio for each geometric sequence.

1) 5, 10, 20, 40, ...

$\frac{10}{5} = 2$

$\frac{20}{10} = 2$

$r =$ 2

2) 45, 15, 5, $\frac{5}{3}$, ...

$\frac{15}{45} = \frac{1}{3}$

$\frac{5}{15} = \frac{1}{3}$

$r =$ $\frac{1}{3}$

3) 0.2, -1, 5, -25, ...

$\frac{-1}{0.2} = -5$

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

$r =$ -5

4) 64, -32, 16, -8, ...

$\frac{-32}{64} = \frac{-1}{2}$

$\frac{16}{-32} = \frac{-1}{2}$

$r =$ $-\frac{1}{2}$

Find the common ratio. Then, multiply the common ratio to get the next 3 terms for each geometric sequence.

5) 3, 9, 27, 81, 243, 729, 2187, ... (×3)

$r = \frac{9}{3} = 3$

6) 5, -10, 20, -40, 80, -160, 320, ... (×(-2))

$r = \frac{-10}{5} = -2$

7) 156.25, 31.25, 6.25, 1.25, 0.25, 0.05, 0.01, ... (×0.2)

$r = \frac{31.25}{156.25} = 0.2$

8) 0.1, 0.4, 1.6, 6.4, 25.6, 102.4, 409.6, ... (×4)

$r = \frac{0.4}{0.1} = 4$

Determine whether the given sequence is arithmetic, geometric, or neither. For arithmetic or geometric sequences, determine the next 3 terms.

9) 4, 8, 12, 16, ... 20, 24, 28

$8-4=4$

$12-8=4$

Arithmetic

$d=4$

10) 1.1, 1.12, 1.123, 1.1234, ... 1.12345, 1.123456, 1.1234567

$1.12-1.1=0.02$

$1.123-1.12=0.003$

not Arithmetic

$\frac{1.12}{1.1}=1.01\overline{8}$

$\frac{1.123}{1.12}\approx 1.003$

not Geometric neither

11) 5, -20, 80, -320, ... 1280, -5120, 20480

$-20-5=-25$

$80-(-20)=80+20=100$

not Arithmetic

$\frac{-20}{5}=-4$

$\frac{80}{-20}=-4$

Geometric

$r=-4$

12) 2, 4, 7, 11, ... 16, 22, 29

$4-2=2$

$7-4=3$

not Arithmetic

$\frac{4}{2}=2$

$\frac{7}{4}=1.75$

not Geometric

neither

$2 \overset{+2}{\rightsquigarrow} 4 \overset{+3}{\rightsquigarrow} 7 \overset{+4}{\rightsquigarrow} 11$