

Name Kay

Date _____
8A Period _____

Homework Day 1

#'s 1-3: Write a rule to describe each sequence. Then find the next three terms in the sequence.

1) 800, 400, 200, 100, ... $\boxed{50}$, $\boxed{25}$, $\boxed{12.5}$
 $\swarrow \quad \swarrow \quad \swarrow \quad \swarrow$
 $\times \frac{1}{2} \quad \times \frac{1}{2} \quad \times \frac{1}{2} \quad \times \frac{1}{2}$

Rule: Start w/ 800 and multiply by $\frac{1}{2}$ repeatedly

2) 1, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, ... $\boxed{\frac{1}{16}}$, $\boxed{\frac{1}{32}}$, $\boxed{\frac{1}{64}}$
 $\swarrow \quad \swarrow \quad \swarrow$
 $\times \frac{1}{2} \quad \times \frac{1}{2} \quad \times \frac{1}{2}$

Rule: Start w/ 1 and multiply by $\frac{1}{2}$ repeatedly

3) 80, 50, 20, -10, ... $\boxed{-40}$, $\boxed{-70}$, $\boxed{-100}$
 $\swarrow \quad \swarrow \quad \swarrow \quad \swarrow$
 $-30 \quad -30 \quad -30 \quad -30$

Rule: start w/ 80 + add by -30 repeatedly

#'s 4 & 5: Identify the common difference in each arithmetic sequence.

4) 11, 15, 19, 23, ...
 $\swarrow \quad \swarrow \quad \swarrow$
 $+4 \quad +4 \quad +4$

$\boxed{d=4}$

5) 20, 12, 4, -4, ...
 $\swarrow \quad \swarrow \quad \swarrow$
 $-8 \quad -8 \quad -8$

$\boxed{d=-8}$

#'s 6 & 7: Identify the common ratio in each geometric sequence.

6) 750, 75, 7.5, 0.75, ...
 $\swarrow \quad \swarrow \quad \swarrow$
 $\times \frac{1}{10} \quad \times \frac{1}{10} \quad \times \frac{1}{10}$

$\boxed{r=\frac{1}{10}}$

7) 3, 6, 12, 24, ...
 $\swarrow \quad \swarrow \quad \swarrow$
 $\times 2 \quad \times 2 \quad \times 2$

$\boxed{r=2}$

#'s 8-10: Identify each sequence as *arithmetic*, *geometric* or *neither*. Then find the next three terms of the sequence.

8) 2.0, 2.3, 2.6, 2.9, ... $\boxed{3.2}$ $\boxed{3.5}$ $\boxed{3.8}$

$+ \frac{3}{10} + \frac{3}{10} + \frac{3}{10} + \frac{3}{10}$

you can also show adding by .3

Arithmetic

9) 21, 15, 9, 3, ... $\boxed{-3}$ $\boxed{-9}$ $\boxed{-15}$

$-6 -6 -6 -6 -6 -6$

Arithmetic

10) 2, 1, 0.5, 0.25, ... $\boxed{0.125}$, $\boxed{.0625}$, $\boxed{.03125}$

$\times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}$

Geometric

#'s 11-13: Tell whether each situation produces an *arithmetic sequence*, a *geometric sequence*, or *neither*.

11) The temperature falls at the rate of 0.5 degrees per hour

Arithmetic - 0.5 repeatedly

12) The number of bacteria in a lake doubles every day

Geometric $\times 2$ repeatedly

13) A baby gains 2 oz every day.

Arithmetic +2 repeatedly