

Name: \_\_\_\_\_  
 Date: \_\_\_\_\_  
 Class: \_\_\_\_\_

Algebra  
 Unit 6  
 HW 6-7

1) Using the 2 tables below, which is a linear function and which is an exponential function? Explain your answer.

TABLE 1

x	0	1	2	3	4
y	5	10	20	40	80

$\xrightarrow{+5}$   $\xrightarrow{\times 2}$   $\xrightarrow{\times 2}$   $\xrightarrow{\times 2}$   
 not linear but it  
 is  $\times 2$  each time so exponential

TABLE 2

x	0	1	2	3	4
y	8	11	14	17	20

$\xrightarrow{+3}$   $\xrightarrow{+3}$   $\xrightarrow{+3}$   $\xrightarrow{+3}$   
 Common rate of change  
 (slope) so linear

2) Find an equation for both tables in #1.

$1 \rightarrow 2^x$  b/c doubling  
 starts at 5 when  $x=0$   
 $y = 5(2)^x$

$2 \rightarrow$  slope  $\frac{3}{1}$   
 y-int  $(0, 8)$   
 $y = 3x + 8$

3) Using the points (0, 12) and (1, 3) find a linear equation that would go through both points.

y-int (12) slope  $\frac{3-12}{1-0} = \frac{-9}{1} = -9$   
 $y = -9x + 12$

4) Using the same points as in #2, find an exponential equation that would go through both points.

$\frac{3}{12} = \frac{1}{4}$  starts at 12  
 $12\left(\frac{1}{4}\right)^x$

5) Find an equation for the data in the following table (first determine if it is linear or exponential).

x	-2	-1	0	1	2
y	32	16	8	4	2

$\xrightarrow{\times \frac{1}{2}}$   $\xrightarrow{\times \frac{1}{2}}$   $\xrightarrow{\times \frac{1}{2}}$   $\xrightarrow{\times \frac{1}{2}}$   
 $x=0 \rightarrow y=8$

$y = 8\left(\frac{1}{2}\right)^x$

6) Find an exponential equation that passes through the points (0, 5) and (1, 15).

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

$x=0$   $y=5$   $y = 5(3)^x$

7) If you are placing \$1200 in a savings account that pays 4.25% interest per year, find the balance that would be in the account after 6 years.

$$1200(1.0425)^6 = \$1540.41$$

8) Simplify:  $\frac{14a^2b^7cd^4}{4a^8bcd^3}$

$$\frac{3.5 \cancel{a^{-6}} b^6 \cancel{c^1} d^1}{1}$$

$$3.5 \left(\frac{1}{a^6}\right) b^6 (1) d$$

$$\frac{3.5 b^6 d}{a^6}$$