Unit 5

[redacted]

Examples:

- LINEAR, QUADRATIC or EXPONENTIAL?

a) $y = 6^x + 3$

b) $y = 7x^2 + 5x - 2$

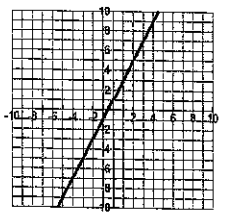
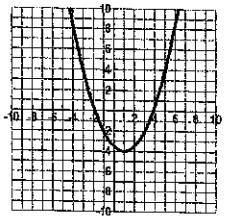
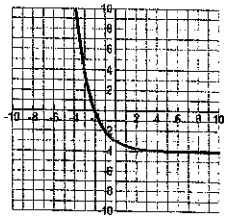
c) $9x + 3 = y$

d) $4^{2x} = 8$

Identifying from an equation:

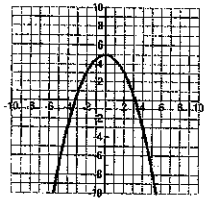
Linear	Quadratic	Exponential
Has an x with _____	Has an_____in the equation.	Has an x as the _____
•	•	•
•	•	•
•	•	•

Identifying from a graph:

Linear	Quadratic	Exponential
Makes a _____	Makes a _____	Makes an _____
		

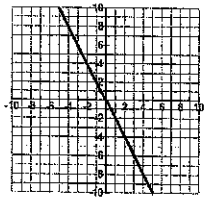
LINEAR, QUADRATIC or EXPONENTIAL?

a)



b)

c)



Is the table linear, quadratic or exponential?

Linear	Quadratic	Exponential
• Never see the same _____ twice. • _____ is the same	• See same y _____ once. • _____ is the same	• y changes more quickly than x. • Never see the same _____ twice. • Common _____ pattern

EXAMPLE 2 **Identify functions using differences or ratios**

b.

x	-2	-1	0	1	2
y	-2	1	4	7	10

EXAMPLE 2 **Identify functions using differences or ratios**

Use differences or ratios to tell whether the table of values represents a *linear function*, an *exponential function*, or a *quadratic function*.

a.

x	-2	-1	0	1	2
y	-6	-6	-4	0	6

GUIDED PRACTICE for Examples 1 and 2

2. **Tell whether the table of values represents a *linear function*, an *exponential function*, or a *quadratic function*.**

x	-2	-1	0	1
y	0.08	0.4	2	10

Is the table linear, quadratic or exponential?

x	y
1	5
2	9
3	13
4	17
5	21

x	y
1	0
2	-1
3	0
4	3
5	8

x	y
1	3
2	9
3	27
4	81
5	243

3. Which is the only type of function below that has an asymptote when graphed?

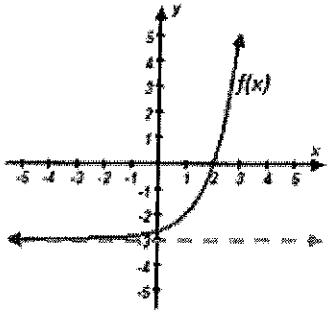
A. Linear Function B. Quadratic Function C. Exponential Function

4. Which is the only type of function below that could have a local maximum?

A. Linear Function B. Quadratic Function C. Exponential Function

5. Describe the end behavior of each of the function below.

A.

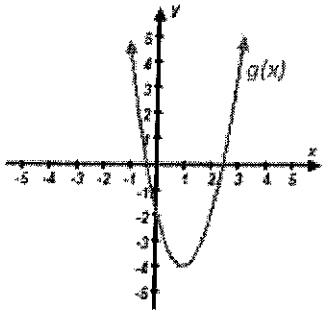


Name:_____

As $x \to -\infty$, $f(x) \to$_____

As $x \to \infty$, $f(x) \to$_____

B.

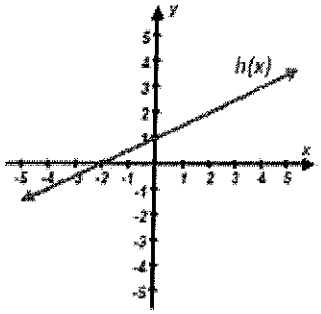


Name:_____

As $x \to -\infty$, $g(x) \to$_____

As $x \to \infty$, $g(x) \to$_____

C.



Name:_____

As $x \to -\infty$, $h(x) \to$_____

As $x \to \infty$, $h(x) \to$_____

6. Which is the only function that might have end behavior such that as x approaches infinity, $f(x)$ approaches 4?

A. Linear Function B. Quadratic Function C. Exponential Function

7. Which is the only function below that might have end behavior such that:
   - As $x \to -\infty$, $f(x) \to \infty$
   - As $x \to \infty$, $f(x) \to \infty$

A. Linear Function B. Quadratic Function C. Exponential Function

8. Which is the only function below that might have end behavior such that:
   - As $x \to -\infty$, $f(x) \to -\infty$
   - As $x \to \infty$, $f(x) \to \infty$

A. Linear Function B. Quadratic Function C. Exponential Function

9. Which is the only function below that might have end behavior such that:
   - As $x \to -\infty$, $f(x) \to -\infty$
   - As $x \to \infty$, $f(x) \to -\infty$

A. Linear Function B. Quadratic Function C. Exponential Function

10. Based on the function given identify which description best fits the function.

A. $f(x) = x(2x + 3)$

Model (circle one):

Linear Growth	Quadratic (Local Max)	Exponential Growth
Linear Decay	Quadratic (Local Min)	Exponential Decay

B. $g(x) = 3(1 - 2x) - 4$

Model (circle one):

Linear Growth	Quadratic (Local Max)	Exponential Growth
Linear Decay	Quadratic (Local Min)	Exponential Decay

C. $h(x) = 2 + \left(\frac{1}{2}\right)^x$

Model (circle one):

Linear Growth	Quadratic (Local Max)	Exponential Growth
Linear Decay	Quadratic (Local Min)	Exponential Decay

D. $m(x) = 3 \cdot (2)^x + 1$

Model (circle one):

Linear Growth	Quadratic (Local Max)	Exponential Growth
Linear Decay	Quadratic (Local Min)	Exponential Decay

E. $p(x) = 2 - 3x^2 + x$

Model (circle one):

Linear Growth	Quadratic (Local Max)	Exponential Growth
Linear Decay	Quadratic (Local Min)	Exponential Decay

F. $q(x) = \frac{1}{2}x - 1$

Model (circle one):

Linear Growth	Quadratic (Local Max)	Exponential Growth
Linear Decay	Quadratic (Local Min)	Exponential Decay

11. Based on the partial set of values given for a function, identify which description best fits the function.

x	0	1	2	3	4
$a(x)$	1	5	9	13	17

Model (circle one):

Linear Growth	Quadratic (Local Max)	Exponential Growth
Linear Decay	Quadratic (Local Min)	Exponential Decay

x	1	2	3	4	5
$b(x)$	1	2	1	-2	-7

Model (circle one):

Linear Growth	Quadratic (Local Max)	Exponential Growth
Linear Decay	Quadratic (Local Min)	Exponential Decay

x	1	2	3	4	5
$c(x)$	0	2	6	14	30

Model (circle one):

Linear Growth	Quadratic (Local Max)	Exponential Growth
Linear Decay	Quadratic (Local Min)	Exponential Decay

x	0	1	2	3	4
$d(x)$	3	0	-1	0	3

Model (circle one):

Linear Growth	Quadratic (Local Max)	Exponential Growth
Linear Decay	Quadratic (Local Min)	Exponential Decay

x	1	2	3	4	5
$e(x)$	65	33	17	9	5

Model (circle one):

Linear Growth	Quadratic (Local Max)	Exponential Growth
Linear Decay	Quadratic (Local Min)	Exponential Decay

x	1	2	3	4	5
$f(x)$	9	7	5	3	1

Model (circle one):

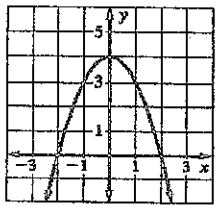
Linear Growth	Quadratic (Local Max)	Exponential Growth
Linear Decay	Quadratic (Local Min)	Exponential Decay

Name _____ Date _____

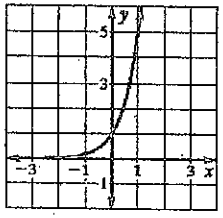
Comparing Linear, Quadratic, and Exponential Worksheet

Identify the following as Increasing Linear, Decreasing Linear, Positive Quadratic, Negative Quadratic, Exponential Growth, or Exponential Decay.

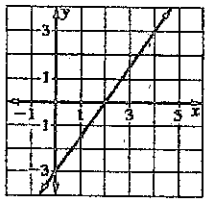
1. _____



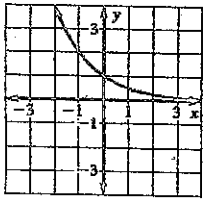
2. _____



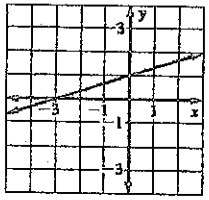
3. _____



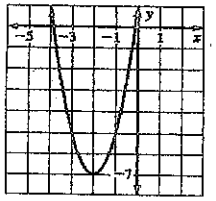
4. _____



5. _____



6. _____



7. _____

x	–2	–1	0	1	2
y	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$

8. _____

x	–1	0	1	2	3
y	1	4	7	10	13

9. _____

x	–1	0	1	2	3
y	22	17	12	7	2

10. _____

x	–1	0	1	2	3
y	$\frac{1}{3}$	1	3	9	27

11. _____

$y = \left(\frac{5}{2}\right)^x$

12. _____

$y = \frac{1}{4} \cdot 3^x$

13. _____

$y = -2x - 10$

14. _____

$y = 2x^2 + 5x - 7$

15. _____

$y = 4x - 3$

16. _____

$y = \frac{2}{5} \cdot 9^x$

17. _____

$y = 3 \cdot \left(\frac{1}{4}\right)^x$

18. _____

$y = 2(0.1)^x$

19. _____

$y = (x+2)^2$

20. _____

$4x + y = 7$

21. _____

$y = 2 \cdot 5^x$

22. _____

$y = -(x-3)^2$

23. _____

$y = -6x^2 - 5x + 4$

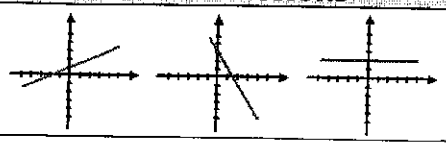
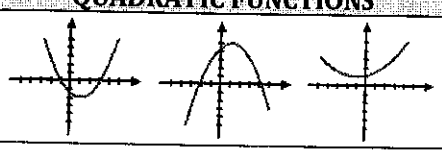
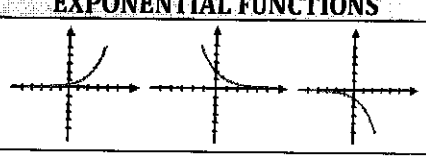
24. _____

$y = \frac{1}{7} \cdot \left(\frac{3}{8}\right)^x$

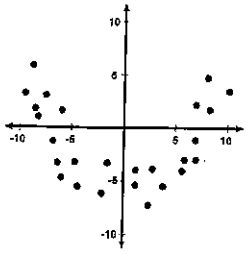
Sec 5.1 – Identifying the Function Linear, Quadratic, or Exponential Functions

Name:

GRAPHICAL EXAMPLES

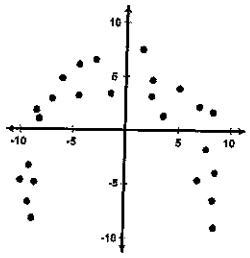
LINEAR FUNCTIONS	QUADRATIC FUNCTIONS	EXPONENTIAL FUNCTIONS
		

1. Graphically identify which type of function model might best represent each scatter plot.

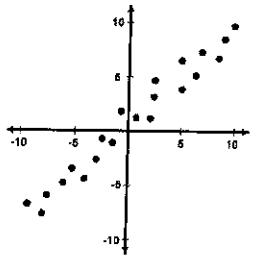


Model (circle one): Linear Quadratic Exponential

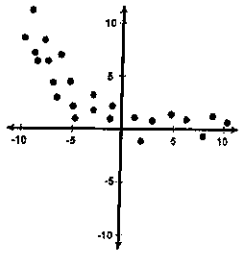
Model (circle one): Linear Quadratic Exponential



Model (circle one): Linear Quadratic Exponential



Model (circle one): Linear Quadratic Exponential



Model (circle one): Linear Quadratic Exponential

2. Match each graph with its description.

____ I. An **exponential** function that is always **increasing**.

____ II. An **exponential** function that is always **decreasing**.

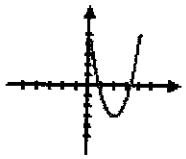
____ III. A **quadratic** function with a **local maximum**.

____ IV. A **quadratic** function with a **local minimum**.

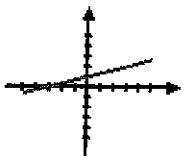
____ V. A **linear** function that is always **increasing**.

____ VI. A **linear** function that is always **decreasing**.

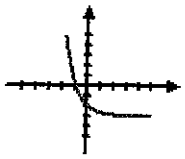
a.



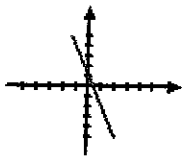
b.



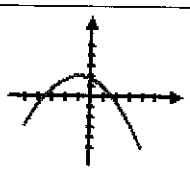
c.



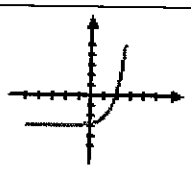
d.



e.



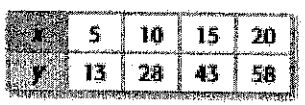
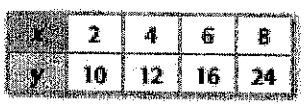
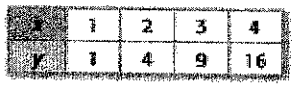
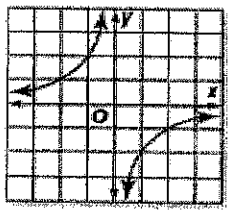
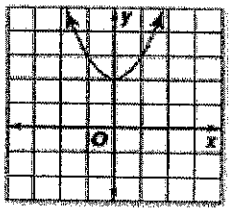
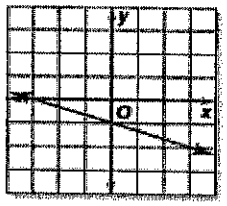
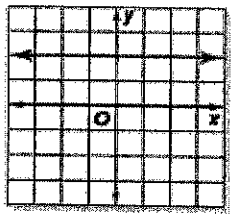
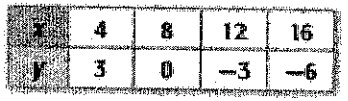
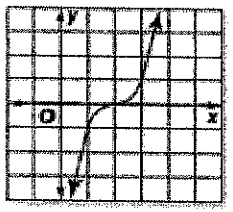
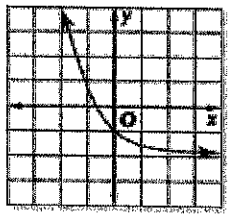
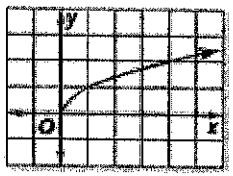
f.



Linear, Exponential, Quadratic or Neither

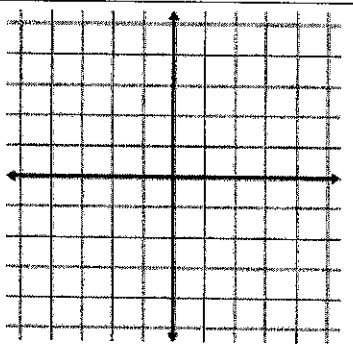
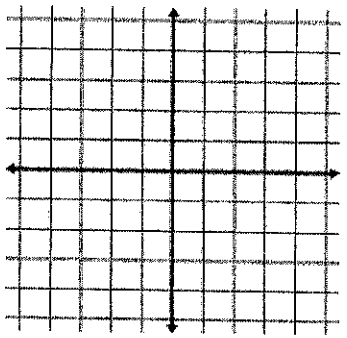
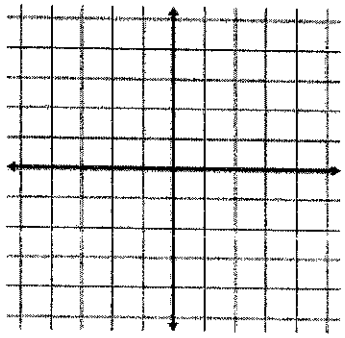
KEY
- = LINEAR
- = EXPONENTIAL
- = QUADRATIC
- = NEITHER

Determine a color for each type of function. Color the box the appropriate color based on what type of function it is.

$y = 7x + 4$	$4x - y = 13$	$y = x^3 + 2x^2 - 12$	$y = x^2 - 1$	$(x-2)(x-3) = 12$
$3x - \frac{4}{3}y = 15$	$y = x(x+9)$	$y = -3(x-2)^2 + 8$	$y = 6x^5$	$y = \frac{13}{x}$
$-x^2 - 2x + 3 = 0$	$x^4 - 10 = 0$	$xy = 17$	$f(x) = 2^{x-3}$	$y = \frac{3x}{2}$
				
				
			$y = \frac{3}{4}(x+12) - 2$	$y - 1 = -2(x-5)$
$y = 14$	$9 = xy$	$\frac{x}{y} = 18$	$\{(1,2),(3,4),(5,6),(7,8),(9,10)\}$	$\{(1,2),(1,3),(1,4),(1,5),(1,6)\}$
A golf ball was hit at the driving range.	The carnival charged an entry fee to get in the park and also a fee per ride ticket.	The population of beetles doubled every week.	Mr. Green weighed decided he wanted to lose four pounds a week.	A basketball free throw was shot to win the game.
$y = (x-3)(x+6)$	$x^2 = 16$	The stock market loses a third of its value every ten years.	The flight path of an Angry Bird.	$\{(1,1),(2,4),(3,9),(4,2),(5,1)\}$

Unit 5: Function Transformations Review
Guided Notes

Name:_____
Date:_____ Period:_____

Function	Transformations	Equation	Graph
Linear Function Parent Function: $y = x$ Transformed: $y = mx + b$	y-intercept:_____ Slope:_____ M =	$y = \frac{3}{2}x + 1$ y-int:_____ Slope:_____	
Quadratic Function Parent Function: $y = x^2$ Transformed: $y = a(x - h)^2 + k$	a:_____ h:_____ k:_____	$y = -(x - 1)^2 - 2$ a:_____ h:_____ k:_____	
Exponential Function Parent Function: $y = ab^x$ Transformed: $y = ab^{x-h} + k$	a:_____ b:_____ h:_____ k:_____	$y = (\frac{1}{2})^{x+2} + 1$ a:_____ b:_____ h:_____ k:_____	

Algebra 1
Comparing Functions – Transformations

Name: _____
Date: _____

WARM-UP – Decide whether the following functions are linear, exponential, quadratic, or neither.

1.

x	y
-3	14
-2	10
-1	6
0	2
1	-2
2	-6
3	-10

2.

x	y
-3	21
-2	12
-1	5
0	0
1	-3
2	-4
3	-3

3.

x	y
-3	$1/9$
-2	$1/3$
-1	1
0	3
1	9
2	27
3	81

Let's remind ourselves of the following transformations for each function! Are they similar in any way?

1. $f(x)=2x+4$

Type of Function: _____
Horizontal Shift: _____
Reflection: none x-axis y-axis
Vertical Shift: _____
Dilation: none stretch shrink

2. $f(x)=0.5(3)^{x-1}-3$

Type of Function: _____
Horizontal Shift: _____
Reflection: none x-axis y-axis
Vertical Shift: _____
Dilation: none stretch shrink

3. $f(x)=-(x+8)^2$

Type of Function: _____
Horizontal Shift: _____
Reflection: none x-axis y-axis
Vertical Shift: _____
Dilation: none stretch shrink

Determine if the following functions are <u>linear</u>, <u>exponential</u>, or <u>quadratic</u>, then **describe** all of the transformations that occur.

4. $f(x)=x-10$ (1 transformation)

5. $f(x)=2(4)^x$ (1 transformation)

6. $f(x)=\frac{1}{2}x^2$ (1 transformation)

7. $f(x)=-x+7$ (2 transformations)

8. $f(x)=(x+3)^2-2$ (2 transformations)

9. $f(x)=-\frac{1}{3}(2)^x-4$ (3 transformations)

10. $f(x)=4(2)^{x-3}+8$ (3 transformations)

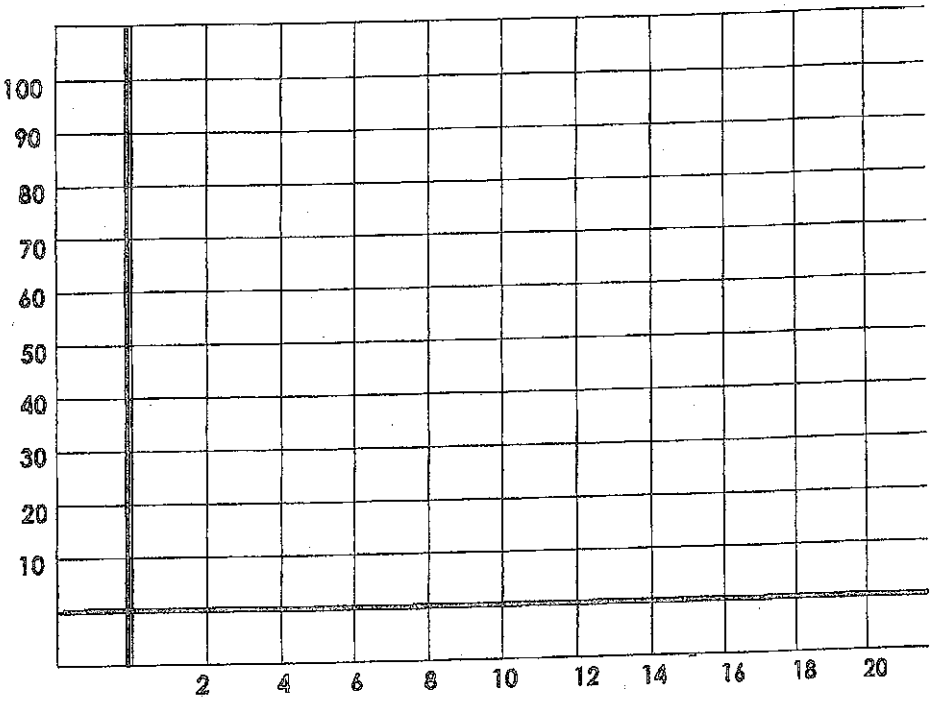
11. $f(x)=-0.9(x-10)^2+1$ (4 transformations)

Task: Raking Leaves

Mr. Wiggins gives his daughter Celia two choices of payment for raking leaves:

- *Choice 1*: Two dollars for each bag of leaves,
- *Choice 2*: She will be paid for the number of bags she rakes as follows: two cents for one bag, four cents for two bags, eight cents for three bags, and so on with the amount doubling for each additional bag.

1	2	.02
2	4	.04
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		



1. If Celia rakes five bags of leaves, should she opt for payment method 1 or 2? What if she rakes ten bags of leaves?

2. How many bags of leaves does Celia have to rake before method 2 pays more than method 1?

3. Describe the differences in payment plans.

4. Describe the difference in the way the payment grows in the table and on the graph.

5. Is this growth situation continuous or discrete? How do you know?

Name: _____ Date: _____

Comparing Linear and Exponential Functions Homework

1. Consider the following:
   - **Option 1**: You can be paid $20 an hour for 20 hours of work. [$20, $40, $60 ...]
   - **Option 2**: You can get $1 the first hour, $2 the second hour, $4 the third hour, and $8 the fourth hour. Your hourly rate would continue to double every hour. You are working 20 hours.

   a. Write an **explicit** formula for each option.

   b. Which option would you choose, and why?

   c. If you only worked 10 hours would your answer be the same? Why?

---

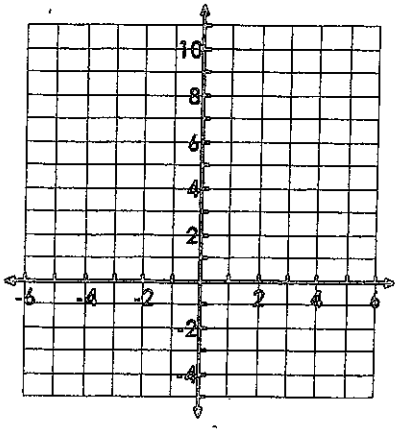
2. **Question**: Which function ***increases faster***, $f(x) = 4x - 5$ or $g(x) = 4^x - 5$?

   a. Make a table of values to help you decide the answer.
   Find the rate of change of different intervals to help you decide.

x	f(x) = 4x – 5
-3	
-2	
-1	
0	
1	
2	
3	

x	g(x) = 4^x – 5
-3	
-2	
-1	
0	
1	
2	
3	

   b. Make a graph to confirm your answer that you put in 2a.



Name: _____ Algebra 1B

Date: _____ Linear vs. Exponential Continued

Linear vs. Exponential Word Problems

At separate times in the course, you've learned about linear functions and exponential functions, and done word problems involving each type of function. Today's assignment combines those two types of problems. In each problem, you'll need to make a choice of whether to use a linear function or an exponential function. Below is some advice that will help you decide.

Linear Function	**Exponential Function**
$f(x) = mx + b$ or $f(x) = m(x - x_1) + y_1$	$f(x) = a \cdot b^x$
b is the *starting value*, m is the *rate* or the *slope*. m is positive for growth, negative for decay.	a is the *starting value*, b is the *base* or the *multiplier*. $b > 1$ for growth, $0 < b < 1$ for decay. See below for ways to find the base b.

Choosing linear vs. exponential

In growth and decay problems (that is, problems involving a quantity increasing or decreasing), here's how to decide whether to choose a linear function or an exponential function.

- If the growth or decay involves increasing or decreasing by a fixed number, use a **linear** function. The equation will look like:

$$y = mx + b$$

$$f(x) = \textbf{(rate)}\, x + \textbf{(starting amount)}.$$

- If the growth or decay is expressed using multiplication (including words like "doubling" or "halving") use an **exponential** function. The equation will look like:

$$f(x) = \textbf{(starting amount)} \cdot \textbf{(base)}^x.$$

PRACTICE

1. Decide whether the word problem represents a linear or exponential function. Circle either linear or exponential. Then, write the function formula.

a. "A library has 8000 books, and is adding 500 more books each year."

Linear or exponential? $y =$ _____.

b. "A gym's customers must pay \$50 for a membership, plus \$3 for each time they use the gym."

Linear or exponential? $y =$ _____.

c. "A bank account starts with \$10. Every month, the amount of money in the account is tripled."

Linear or exponential? $y =$ _____.

d. "At the start of a carnival, you have 50 ride tickets. Each time you ride the roller coaster, you have to pay 6 tickets."

Linear or exponential? $y =$ _____.

e. "There are 20,000 owls in the wild. Every decade, the number of owls is halved."

Linear or exponential? $y =$ _____.

2. Decide whether the table represents a linear or exponential function. Circle either linear or exponential. Then, write the function formula.

a.

x	0	1	2	3	4	5	6	7
y	2	5	8	11	14	17	20	23

Linear or exponential? $y =$ _____.

b.

x	0	1	2	3	4	5	6	7
y	3	6	12	24	48	96	192	384

Linear or exponential? $y =$ _____.

c.

x	0	1	2	3	4	5	6	7
y	10	5	2.5	1.25	.625	.3125	.15625	.078125

Linear or exponential? $y =$ _____.

d.

x	0	1	2	3	4	5	6	7
y	12	8	4	0	-4	-8	-12	-16

Linear or exponential? $y =$ _____

e.

x	0	1	2	3	4	5	6	7
y	50	35	24.5	17.15	12.005	8.4035	5.88245	4.117715

Linear or exponential? $y =$ _____

Algebra 1
Homework - Arithmetic and Geometric Sequences

Name_____
Date_____

Arithmetic Sequences	Geometric Sequences
Recursive: $a_1 =$ ___; $a_n = a_{n-1} + d$	**Recursive**: $a_1 =$ ___; $a_n = a_{n-1} * (r)$
Explicit: $a_n = dn + a_0$	**Explicit**: $a_n = a_1 * (r)^{n-1}$

Determine if the sequence is arithmetic or geometric. Then write the **recursive** formula.

1. 10, 30, 90, ...

geometric or arithmetic

_____

2. 8, 2, -4, -10, ...

geometric or arithmetic

_____

Determine if the sequence is arithmetic or geometric. Then write the **explicit** formula.

3. -400, 80, -16, ...

geometric or arithmetic

_____

4. -22, 6, 34, ...

geometric or arithmetic

_____

Given the following formulas, write the first four terms.

5. $a_1 = -81$; $a_n = a_{n-1} * (1/3)$

_____, _____, _____, _____

6. $a_n = 8(3)^{n-1}$

_____, _____, _____, _____

Given the following geometric explicit formulas, write the first term and common ratio, then find the given term.

7. $a_n = 3072(1/4)^{n-1}$

$a_1 =$ _____ $r =$ _____

$a_7 =$ _____

8. $a_n = 3(-5)^{n-1}$

$a_1 =$ _____ $r =$ _____

$a_8 =$ _____

9. The Pope High School weight training record for the number of push-ups in one day is 507. Zion wants to beat this record, so he starts his training. On the first day, Zion does one push-up. He then doubles the number of push-ups he does every day.

Write the first 4 terms of this geometric sequence:

Write the explicit formula for the sequence:

Will Tomir beat the school record after 10 days? Explain.

Algebra

Name: _____ Date: _____

Sequences Practice Worksheet

Arithmetic Sequences: A sequence of terms that have a common _____ between them.

Formula: $a_n = dn + a_0$ where a_0 is the zero term (y-intercept) in the sequence and d is the common difference.

Geometric Sequences: A sequence of terms that have a common _____ between them.

Formula: $a_n = a_1(r)^{n-1}$ where a_1 is the first number in the sequence and r is the common ratio.

Are the following sequences, arithmetic, geometric, or neither?
***If they are arithmetic, state the value of *d*. *If they are geometric, state *r*.**

1. 6, 12, 18, 24, ... type: _____ *d* or *r*: _____
2. 6, 11, 17, ... type: _____ *d* or *r*: _____
3. 2, 14, 98, 686, ... type: _____ *d* or *r*: _____
4. 160, 80, 40, 20, ... type: _____ *d* or *r*: _____
5. -40, -25, -10, 5, ... type: _____ *d* or *r*: _____
6. 7, -21, 63, -189, ... type: _____ *d* or *r*: _____

For the following sequences, find a_0 and *d* and state the formula for the general term. Don't forget to simplify!

7. -10, -4, 2, 8, 14, ... a_0 = _____ d = _____ Formula:
8. 10, 8, 6, 4, ... a_0 = _____ d = _____ Formula:
9. 36, 31, 26, 21, ... a_0 = _____ d = _____ Formula:

---

10. Use the formula from question #9 to find the value of a_7 and a_{20}.

For the following sequences, find a_1 and *r* and state the formula for the general term. Don't forget to simplify!

11. 1, 3, 9, 27, ... a_1 = _____ r = _____ Formula:
12. 12, 6, 3, 1.5, ... a_1 = _____ r = _____ Formula:
13. 9, -3, 1, -1/3, ... a_1 = _____ r = _____ Formula:

---

14. Use the formula from question #13 to find the value of a_4 and a_{12}.

Decide if each of the following scenarios describes an arithmetic or geometric sequence. Then, write the formula for the sequence.

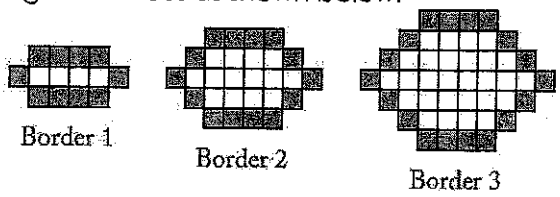
15. A student comes to school with the flu and infects three other students within an hour before going home. Each newly infected student passes the virus to three new students in the next hour. This pattern continues until all students in the school are infected with the virus.

Type: _____ Formula: _____

16. Round 1 of a tennis tournament starts with 128 players. After each round, half the players have lost and are eliminated from the tournament. Therefore, in round 2 there are 64 players, in round 3 there are 32 players and so on.

Type: _____ Formula: _____

17. Fred decides to cover the kitchen floor with tiles of different colors. He starts with a row of four tiles of the same color. He surrounds these four tiles with a border of tiles of a different color (Border1). The design continues as shown below:



Type: _____ Formula: _____

18. Paul has $680 in a savings account. He makes a deposit after he receives each paycheck. After one month he has $758 in the account. The next month the balance is $836. The balance after the third month is $914.

Type: _____ Formula: _____

19. The table shows the number of country club members for four years after it began.

Time(yrs)	0	1	2	3	4
Members	100	200	300	400	500

Type: _____ Formula: _____

Even and Odd Functions

1

Algebraically

A function is even if

All of the exponents of the variable are even.

A function is odd if

All of the exponents of the variable are odd.

A function is neither if

The exponents are a mixture of odd and even

2

BEWARE OF CONSTANTS

All constants really have a x^0

3

x^0 is EVEN!!

4

Graphically

A function is even if

The graph reflects across the y-axis

(means you can fold it hotdog style and it would match up).

A function is odd if

The graph has 180° rotational symmetry about the ORIGIN

(means you could turn it upside-down & it would still look the same...it must go through the origin).

5

Ex. 1 Even, Odd or Neither?

Algebraically

$$f(x) = x^3 - x$$

6

Ex. 2 Even, Odd or Neither?

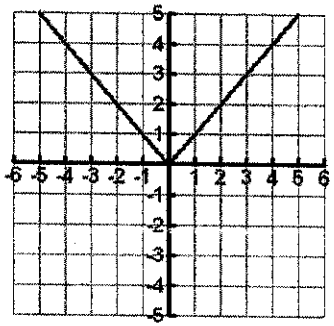
Algebraically

$$f(x) = x^2 + 1$$

7

Ex. 3 Even, Odd or Neither?

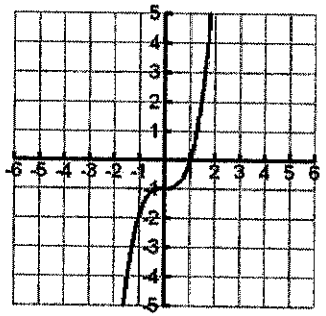
Graphically



8

Ex. 4 Even, Odd or Neither?

Graphically



9

Even, Odd or Neither?

$f(x) = 2x^4 - 3$

$f(x) = x^3 + x$

10

Even, Odd or Neither?

$f(x) = -x^3$

$f(x) = 5x^3$

$f(x) = x^2 + 4$

11

Even, Odd or Neither?

$f(x) = x^3 - x^2$

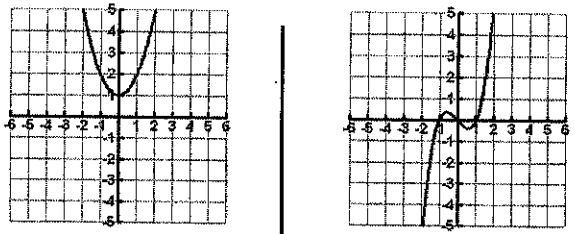
$f(x) = -x^3 + 2x$

$f(x) = x^3 + 4x + 1$

12

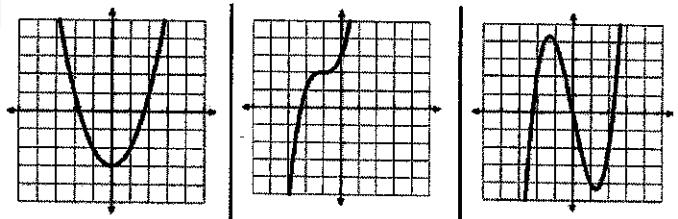
20

Even, Odd or Neither?



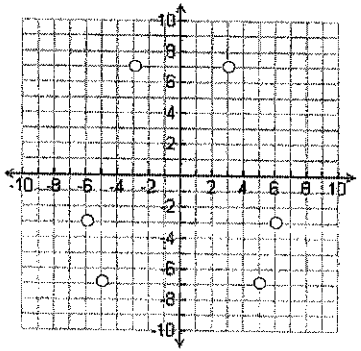
13

Even, Odd or Neither?



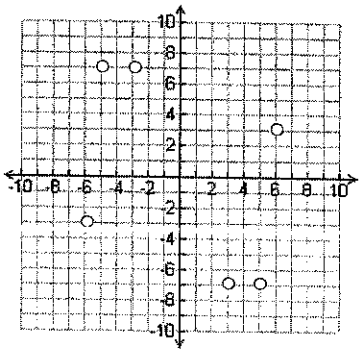
14

If the dots shown are part of an <u>even</u> function, what points are also on the function?



15

If the dots shown are part of an <u>odd</u> function, what points are also on the function?

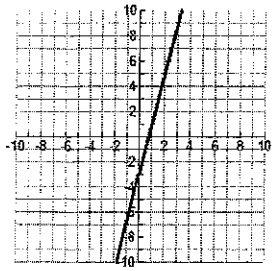


16

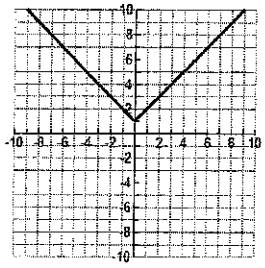
Even, Odd, or Neither Classwork/Homework **Name:** _____

Determine whether the following functions are even, odd, or neither. Justify each answer.

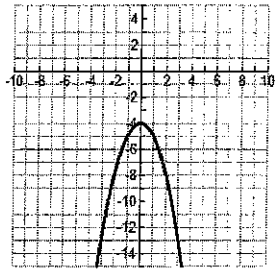
1. $f(x) = 4x - 3$



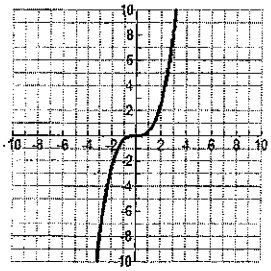
2. $f(x) = |x| + 1$



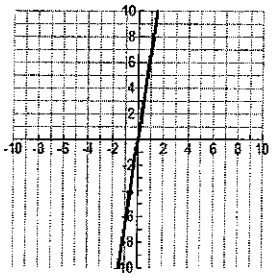
3. $f(x) = -x^2 - 4$



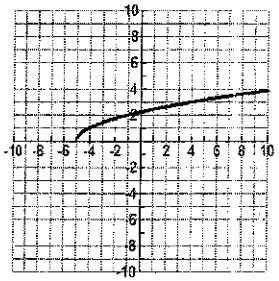
4. $f(x) = \frac{1}{3}x^3$



5. $f(x) = 7x$



6. $f(x) = \sqrt{x+5}$



7. $f(x) = 3x^2$

8. $f(x) = x^3 - 2$

9. $f(x) = 3x + 4$

10. $f(x) = x^2 - 5$

11. $f(x) = 10x + 5$

12. $f(x) = 2(x+1)^3$