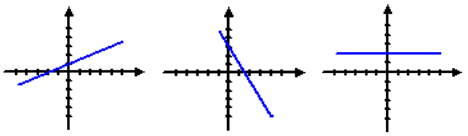
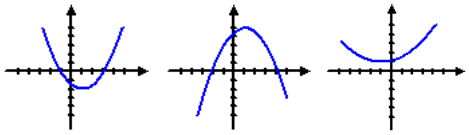
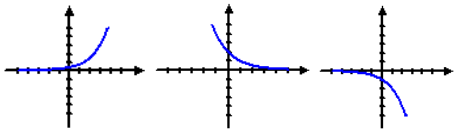
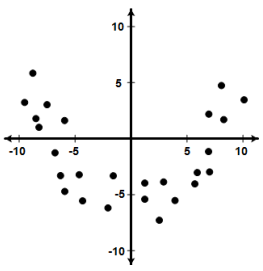
Sec 5.1 – Identifying the Function
Linear, Quadratic, or Exponential Functions

Name: _____

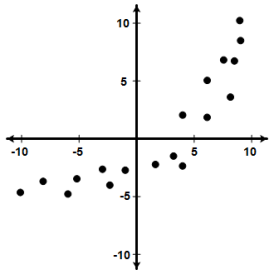
GRAPHICAL EXAMPLES

LINEAR FUNCTIONS	QUADRATIC FUNCTIONS	EXPONENTIAL FUNCTIONS
		

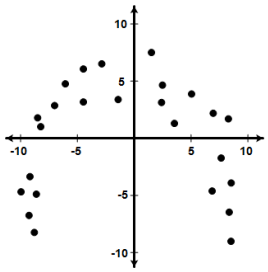
1. Graphically identify which type of function model might best represent each scatter plot.



Model (circle one): Linear Quadratic Exponential

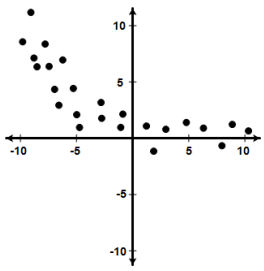


Model (circle one): Linear Quadratic Exponential



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**.

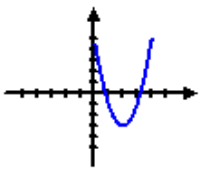
_____ II. An **exponential** function that is always **decreasing**.

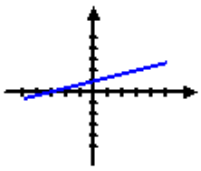
_____ III. A **quadratic** function with a **local maximum**.

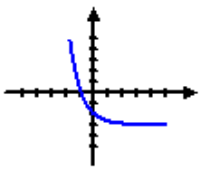
_____ IV. A **quadratic** function with a **local minimum**.

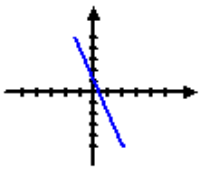
_____ V. A **linear** function that is always **increasing**.

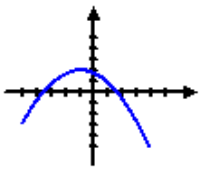
_____ VI. A **linear** function that is always **decreasing**.

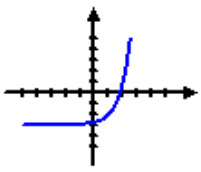
a. 

b. 

c. 

d. 

e. 

f. 

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

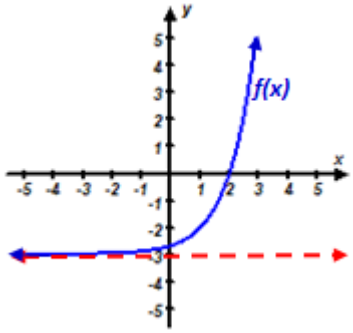
A. Linear Function B. Quadratic Function C. Exponential Function

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.

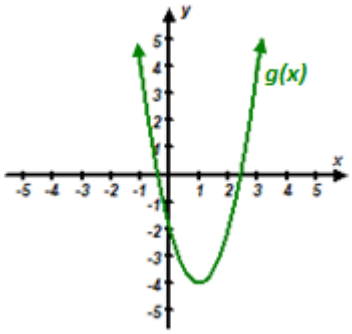


Name:_____

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

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

B.

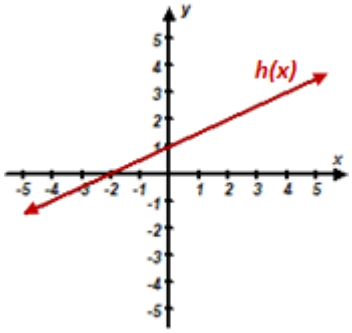


Name:_____

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