

Warmup:

Match a graph and a table to each of the 3 functions

Linear

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

2

1)

x	f(x)
-2	$\frac{13}{4}$
-1	$\frac{7}{2}$
0	4
1	5
2	7

Quadratic

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

2)

x	f(x)
-2	-1
-1	1
0	3
1	5
2	7

3)

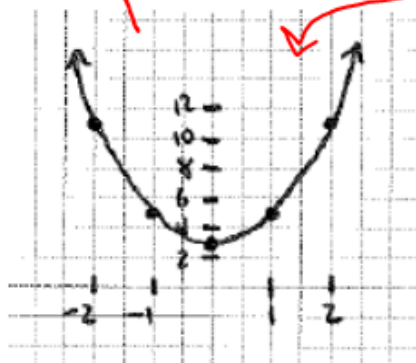
x	f(x)
-2	11
-1	5
0	3
1	5
2	11

Exponential

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

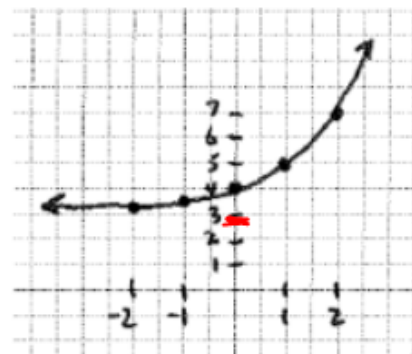
1, b "k"

a)

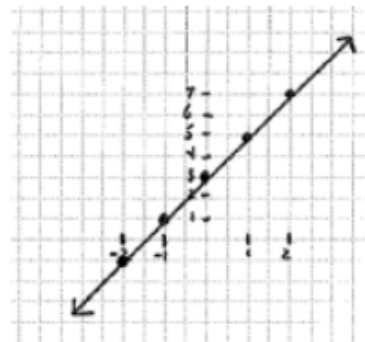


"parabola"

b)



c)



Unit 5: Comparing and Contrasting Functions

- Deepen their understanding of linear, quadratic, and exponential functions as they compare and contrast the three types of functions.
- Construct and compare characteristics of linear, quadratic, and exponential models and solve problems.
- Distinguish between linear, quadratic, and exponential functions graphically, using tables, and in context.

Compare / Contrast: Linear, Quadratic, and Exponential Functions

Now that you have the graphs and tables to match each function:

complete the chart to identify some key characteristics of each function.

$$0 = 2x + 3$$

$$\left(\frac{-3}{2}\right) \frac{2x}{2}$$

Attribute	Linear Functions	Quadratic Functions	Exponential Functions
Rate of change	<u>constant</u> slope = 2	<u>not constant</u> decreasing/increasing.	always increasing. multiplying by 2
Domain & Range	D: $(-\infty, \infty)$ R: $(-\infty, \infty)$	D: $(-\infty, \infty)$ R: $[3, \infty)$	D: $(-\infty, \infty)$ R: $(3, \infty)$
Intercepts	x-int: -1.5 y-int: 3	x-int: N/A y-int: $\frac{3}{4}$	x-int: N/A y-int: (0, 4)
Asymptotes	N/A	N/A	<u>y = 3</u> *
End Behavior	as $x \rightarrow -\infty$ $y \rightarrow -\infty$ as $x \rightarrow \infty$ $y \rightarrow \infty$	as $x \rightarrow -\infty$ $y \rightarrow \infty$ as $x \rightarrow \infty$ $y \rightarrow \infty$	as $x \rightarrow -\infty$ $y \rightarrow 3$ as $x \rightarrow \infty$ $y \rightarrow \infty$

Compare and Contrast Linear, Quadratic and Exponential Functions Task

In your notes you have a table for three different functions.

#1) In your groups, complete the table of values for each function

#2) Construct a graph of all three functions on the same coordinate plane. Use a different color for each function.

#3) Identify the listed features of each function in the chart.

#4) Create a poster showing your comparison of the three different functions.