## Comparing Apples and Oranges

Functions take several different forms: graphs, rules, tables, and verbal descriptions. We are not always given consistent forms, so we'll need to be able to identify key characteristics even if we are given a graph of one function and a table of another.

Which of the two linear functions has the steeper slope?

$y = 4x - 6$

In this case, both linear functions are equally steep in opposite directions (4 & –4)
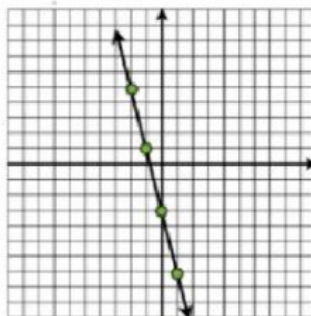
Which of the two quadratic functions has real solutions?

$f(x) = 4x^2 - 13$

X	–1	0	1	2	3	4	5
Y	10	5	0	–2	–2	0	4

Both functions have real zeros because the 1ˢᵗ can be solved when f(x) = 0, and the 2ⁿᵈ has x-intercepts.

Which of the two exponential functions is an example of exponential growth?

$f(x) = 0.4^x - 13$

The graph is an example of exponential growth because it curves upward. The function rule is not because the base is less than 1.
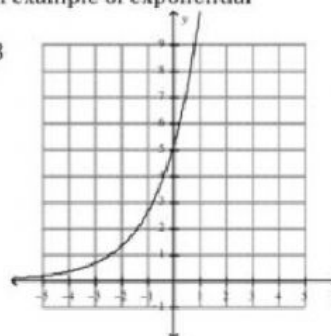
Comparing Apples and Oranges

Directions:

Functions take several different forms: graphs, rules, tables, and verbal descriptions. We are not always given consistent forms, so we'll need to be able to identify key characteristics even if we are given a graph of one function and a table of another.

Translating between the different forms allows us to become more fluent with functions. We'll use these forms in order to critically think about what the differences are between functions given to us in different forms.
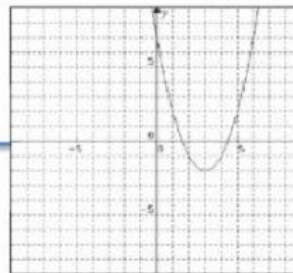
1.) Which of the two linear functions has a flatter slope? Why? Use a complete sentence.

x	-32	-30	-28	-26
y	1	-3	-7	-11

$4x - 3y = 7$

_____

_____

_____

_____

2.) Which of the two quadratic functions has a maximum? Why? Use a complete sentence.

x	-1	0	1	2	3	4	5
y	10	5	0	-2	-2	0	4

3.) Which of the two exponential functions is an example of exponential decay? Why? Use a complete sentence.

$$f(x) = \frac{1}{3}^{x-2} + 3$$

x	-3	-2	-1	0	1	2
y	$\frac{1}{9}$	$\frac{1}{3}$	1	3	9	27

_____

_____

_____