

## Questions on 3.2?

We will be taking our content mastery quiz shortly!

x	y
0	3
1	5
2	7
3	9
4	11
⋮	

$\rightarrow 2$   
 $\rightarrow 2$   
 $\rightarrow 2$

$2x + 3$

x	y
1	3
2	9
3	27
4	81

$\cdot 3$   
 $\cdot 3$   
 $\cdot 3$

$3^x$

x	y
0	4
1	7
2	9
3	13
4	19

$\cdot 2$   
 $\cdot 2$   
 $\cdot 4$   
 $\cdot 2$   
 $\cdot 6$   
 $\cdot 2$

Quadratic

V:  $(\frac{1}{2},$

# Are All Functions Created Equal?

## 3.3

### Comparing Multiple Representations of Functions

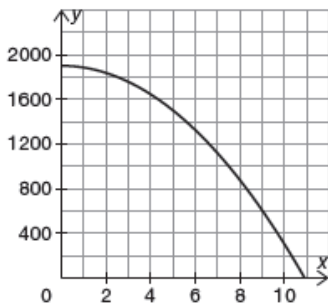
NOT IN YOUR BOOK

1. The functions, graphs, and tables that represent 3 different scenarios are shown.

F1.

$$f(x) = -16x^2 + 1900$$

G3.



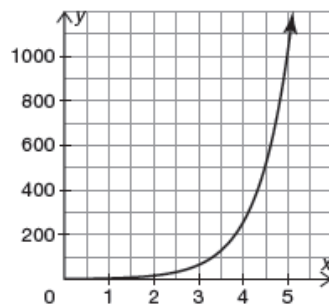
T2.

x	y
0	1900
2	1836
4	1644
6	1324
8	876

F2.

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

G1.



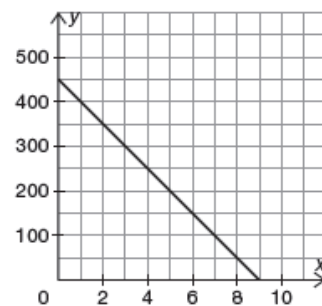
T1.

x	y
0	1
1	4
2	16
3	64
4	256

F3.

$$f(x) = -50x + 450$$

G2.



T3.

x	y
0	450
2	350
4	250
6	150
8	50

- a. Juanita is driving home from her vacation spot at a constant rate. Which function, graph, and table represent her distance from home as a function of the number of hours she has traveled? Explain your reasoning.
- b. A mechanic drops a wrench from a flying helicopter. Which function, graph, and table represent the height of the wrench above the ground as a function of the time since it was dropped? Explain your reasoning.
- c. Scientists watch as a single cell divides into 4 cells over the course of an hour. During the next hour, each of the 4 new cells divides into 4 cells and the process continues. Which function, graph, and table represent the total number of cells as a function of time? Explain your reasoning.

## PG.134 IN YOUR BOOK

Understanding patterns not only gives insight into the world around you, it provides you with a powerful tool for predicting the future. Pictures, words, graphs, tables, and equations can describe the exact same pattern, but in different ways.

A relation is a mapping between a set of input values and a set of output values. In the problem, *The Cat's Out of the Bag*, you used a visual model, graph, table, and context to describe the relation between the number of ballot counters, and the total number of seniors that learned the result of the homecoming king election. In relations such as this one, there is only one output for each input. This type of relation is called a *function*. A **function** is a relation such that for each element of the domain there exists exactly one element in the range. **Function notation** is a way to represent functions algebraically. The function  $f(x)$  is read as "f of x" and indicates that  $x$  is the input and  $f(x)$  is the output.

**Directions:** Cut out the relations provided on the following pages. You will encounter graphs, tables, equations, and contexts. Analyze and then sort the relations into groups of equivalent representations. **All relations will have at least one match.**

Attach your groupings on the blank pages that follow the cut-out pages. Then provide a brief rationale for how you grouped each set of relations.

Remember that the domain is the set of all the input values and the range is the set of all the output values.



Be careful— all groupings do not necessarily have the same number of representations. Also, remember that equations can be written in different forms and still be equivalent.



Classwork/Homework

Finish lesson 3.3