**Notes**

**Vocabulary**

Inverse:

* **How to determine if two functions are inverses:**

1. a. Show that the following functions are inverses using composition: and .
2. Now, graph the two functions on your calculator. Does the graph support your answer from **part a**?
3. a. Show that the following functions are inverses using composition:  and **.**
4. Now, graph the two functions on your calculator. Does the graph support your answer from **part a**?
5. Graph the functions  and . Are these functions inverses?

* **How to find the inverse:**
* **Notation:**

1. Find the inverse of the following functions.
   1. 
   2. 
2. The following table shows the amount of garbage, , in millions of tons, produced in the U.S. as reported by the EPA.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ***t*: years since 1900** | 60 | 65 | 70 | 75 | 80 | 85 | 90 |
|  | 90 | 105 | 120 | 130 | 150 | 165 | 180 |

1. Evaluate .
2. Interpret your answer from **part a** within the context of the situation.
3. Evaluate .
4. Interpret your answer from **part c** within the context of the situation.
5. Evaluate .
6. Interpret your answer from **part e** within the context of the situation.
7. The height, *h*, of the ball thrown off of a building, in feet, as a function of time, *t*, in seconds is modeled by the graph.



1. Evaluate .
2. Interpret your answer from **part a** within the context of the situation.
3. Evaluate .
4. Interpret your answer from **part c** within the context of the situation.
5. If *P = f (t)* gives the population of a city in thousands, as a function of time, *t*, in years since 2005,
   1. What does represent?
   2. What does represent?
6. A college meal plan is based on a membership fee plus a price per meal. Thirty meals cost $152.50 and 60 meals cost $250. Let *P* = f(*n*) where *P* is the price of the meal plan in dollars and *n* is the number of meals.
7. Write an equation for *P*.
8. Complete the following statement:

* In the function *f*, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a function of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. Find .
2. Complete the following statement:

* In the function , \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a function of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. Evaluate and interpret what this means in the context of the situation.
2. Evaluate  and interpret what this means in the context of the situation.