**Notes**

1. Mailing a package costs $1.13 for the first two ounces and 17 cents for each additional ounce up to 13 ounces.
   1. Identify the independent and dependent variables.
   2. Fill in the table below. c. Label the axes and make a graph.

|  |  |  |  |
| --- | --- | --- | --- |
| **Weight in oz.** | **Cost in dollars** |  |  |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |
| 6 |  |
| 7 |  |
| 8 |  |
| 9 |  |
| 10 |  |
| 11 |  |
| 12 |  |
| 13 |  |

1. Write a function that describes the cost of a package as a function of its weight.
2. The following piece-wise function, , depicts the amount of water in thousands of gallons in a swimming pool after *h* hours have elapsed.



* 1. Identify the vertical intercept (Hint: there is only one!!).
  2. What is the meaning of the vertical intercept in the context of this situation?
  3. Graph the function below.



* 1. Determine the horizontal intercept and use the horizontal intercept to fill in the one blank in the function definition above (and to help you graph the function).
  2. Evaluate *w(5)* and interpret its meaning in the context of the situation.
  3. Evaluate *w(25)*, and *w(40)*. Include units with your answer.

1. A pizza place has a special offer for the Super Bowl. The pricing structure is shown below in the graph.



* 1. Define the variables.
  2. Write the function that describes this situation.
  3. Write a one to two sentence “ad” that explains the pricing structure to the customer.

1. The graph and function below model a water cistern as it is filled and emptied where gallons, *G(t)*, are a function of time, *t* in hours. Fill in the **four** blanks below to complete the definition of the function.

**Amount of Water in Cistern**





1. Below is the graph of a piece-wise function of a tree in inches from the time it was planted to when it reached 65 years old.



* 1. Fill in the **6 blanks** below to complete the definition of the function. Refer to the graph above.



* 1. Using the function defined in **part a**, evaluate *H(48)* and *H(60)*. Show all work **algebraically** if applicable.

*H(48)* =

*H(60)* =

* 1. Using the function defined in **part a**, **algebraically** find the age of the tree when it was 4 feet tall (1 foot = 12 inches).