## Activity 1.2.1 Function Review

1. Evaluate the following functions for the values defined below. Remember the meaning of function notation: $f(x)$ does not mean $f$ times $x$.
a. $f(x)=4+x$ for $x=-6,0$, and 10
b. $f(x)=-5 x+3$ for $x=-9,-1$, and 3
c. $g(h)=h^{2}-3 h+5$ for $h=-4,6$, and 12
d. $c(d)=-\frac{3}{4} d+5$ for $d=-16,-4$, and 24
2. Josh worked at day camp over the summer and earned $\$ 8.00$ per hour. Complete the table below and create a graph that represents the relationship the two variables. Label and scale the axes.

| Hours <br> Worked | Total Pay <br> (dollars) |
| :---: | :---: |
| 10 |  |
| 15 | 160 |
|  |  |
| 25 | 240 |


3. Complete the table below. For each function, give the natural domain of the function as the domain.
$\left.\begin{array}{|l|l|l|}\hline \text { a. } f(x)=-3 x+2 & \text { b. } f(x)=0.5 x^{2}-2 x+5 \\ \text { Domain: } & & \begin{array}{l}\text { c. } f(x)=\sqrt{x} \\ \text { Domain: }\end{array} \\ \text { Range: } & \text { Range: } \\ & \\ \text { Range: }\end{array}\right]$
4. Write the domain and range of each of the following functions.
a.

| Name | Jack | Simone | Trish | Peter |
| :--- | :---: | :---: | :---: | :---: |
| Birthday | Nov. 7 | Jan. 3 | Jul. 4 | Sept. 9 |

b. $\{(4,3),(-8,0),(-20,-6),(18,7.5),(0,1)\}$
c. David's Growth Chart

| Age (years) | 0 | 3 | 6 | 9 | 12 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Height (inches) | 21 | 38 | 45 | 54 | 63 |

5. The table below shows the diameter and circumference of five circles.

| Diameter | Circumference |
| :---: | :---: |
| 2 | $2 \pi$ |
| 3 | $3 \pi$ |
| 4 | $4 \pi$ |
| 5 | $5 \pi$ |
| 6 | $6 \pi$ |

a. Represent the data as ordered pairs.
b. Graph the ordered pairs listed above. Label and scale the axes.

c. Write a verbal description of this function.
d. Write an equation that represents this function.
6. Thomas bought a new car yesterday for $\$ 20,000$. He learned that the car depreciates $15 \%$ of its value each year (that is, the value decreases by $15 \%$ each year). How much will his car be worth in 6 years?
Hint: The decay or depreciation function can be written $f(x)=a b^{x}$, where $a=$ the initial value, $b=$ the decay factor (which is $1-$ percent decrease per year,) and $x=$ number of years that the price has decreased.
a. Write an equation that models the amount that Thomas' car will depreciate in $x$ years.
b. Make a table of ordered pairs that satisfy the equation in Part a. Graph the function by graphing the ordered pairs first, then drawing a smooth curve between the points.

| $x$ | $y$ |
| :---: | :---: |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |


7. The function $f(c)=\frac{9}{5} c+32$ describes a real-world relationship.
a. Make a table of ordered pairs that satisfy the function. Graph the function by graphing the ordered pairs first, then drawing a smooth line between the points.

| $x$ | $y$ |
| :---: | :---: |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |



