**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*.
2. $f\left(x\right)=4+x$ for *x* = -6, 0, and 10 b. $f\left(x\right)=-5x+3$ for *x* = -9, -1, and 3

c. $g\left(h\right)=h^{2}-3h+5$ for *h* = -4, 6, and 12 d. $c\left(d\right)=-\frac{3}{4}d+5$ for *d* = -16, -4, and 24

1. 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 Worked** | **Total Pay (dollars)** |
| 10 |  |
| 15 |  |
|  | 160 |
| 25 |  |
|  | 240 |



**Exploring Domain and Range Using Geogebra**

Directions:

* Go to <http://geogebratube.org/material/show/id/87298>
* Click on View Worksheet
* Click on the input box next to f(x). (The equation that is preloaded f(x) = (2^sqrt(4sin(x))
* Delete this function and enter the functions below.
* The domain consists of the green points on the x-axis; the range consists of the blue points on the *y*-axis.
1. Complete the table below. For each function, give the natural domain of the function as the domain.

|  |  |  |
| --- | --- | --- |
| 1. $f\left(x\right)=-3x+2$

Domain:Range: | 1. $f\left(x\right)=0.5x^{2}-2x+5$

Domain:Range: | 1. $f\left(x\right)=\sqrt{x}$

Domain:Range: |

1. Write the domain and range of each of the following functions.

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

a.

1. {(4,3), (-8,0), (-20,-6), (18,7.5), (0,1)}
2. David’s Growth Chart

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

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

|  |  |
| --- | --- |
| **Diameter** | **Circumference** |
| 2 | 2π |
| 3 | 3 π |
| 4 | 4π |
| 5 | 5π  |
| 6 | 6π |

1. Represent the data as ordered pairs.
2. Graph the ordered pairs listed above. Label and scale the axes.



1. Write a verbal description of this function.
2. Write an equation that represents this function.
3. 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 $f\left(x\right)=ab^{x}$, 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.

1. Write an equation that models the amount that Thomas’ car will depreciate in *x* years.
2. 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* |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

1. The function $f\left(c\right)=\frac{9}{5}c+32$ describes a real-world relationship.
2. 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* |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

1. What real-world relationship does this function describe?