Name _____ Date _____

There Are Many Ways to Represent Functions

Recognizing Algebraic and Graphical Representations of Functions

For each scenario, enter the function into your graphing calculator to determine the shape of its graph. Then complete the table based on the characteristics of the function family.

1. A fitness company is selling DVDs for one of its new cardio routines. Each DVD will sell for \$15. Due to fixed and variable costs, the profit that the company will see after selling x DVDs can be represented by the following function.

$$P(x) = 11.5x - 0.1x^2 - 150$$

Function Family	
Increasing/Decreasing	
Absolute Maximum/Absolute Minimum	
Curve/Line	

2. The PARK SAFE commuter lot charges different rates depending on the number of hours a car is parked during the 5-day work week. The lot charges \$3 per hour for the first day, \$2 per hour for the next 2 days, and will charge \$1 per hour if the car is parked more than 3 days in the lot. The fees after x hours can be represented by the following function.

$$f(x) = \begin{cases} 3x, & 0 \le x \le 24 \\ 72 + 2(x - 24), & 24 < x \le 72 \\ x + 168 & 72 < x \le 120 \end{cases}$$

Function Family	
Increasing/Decreasing	
Absolute Maximum/Absolute Minimum	
Curve/Line	

3. Shari is going to put $500 into an account with The People's Bank. The bank is offering a 3% interest rate compounded annually. The amount of money that Shari will have after x years can be represented by the following function.

$$A(x) = 500(1.03)^x$$

Function Family	
Increasing/Decreasing	
Absolute Maximum/Absolute Minimum	
Curve/Line	

4. The Ace Calendar Company is going to buy a new 3D printer for $20,000. In order to plan for the future, the owners are interested in the salvage value of the printer each year. The salvage value after x years can be represented by the following function.

$$S(x) = 20{,}000 - 2000x$$

Function Family	
Increasing/Decreasing	
Absolute Maximum/Absolute Minimum	
Curve/Line	

5. An underwater camera has been placed in the center of the 25-meter pool at the Grandtown Aquatic Center to take pictures of swimmers during a swim meet. The camera will go off at different times depending on the distance of the swimmer to the camera. If the swimmer is moving at a constant rate of 1.28 meters per second, then the distance the swimmer is from the camera after x seconds can be represented by the following function.

$$d(x) = 1.28\,|x - 9.77|$$

Function Family	
Increasing/Decreasing	
Absolute Maximum/Absolute Minimum	
Curve/Line	