**Key Features of Functions**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Intercepts -

Rate of Change -

Maximums/Minimums -

Symmetries -

Intervals of Increase and/or Decrease –

Examples

1. Elizabeth decided to create an email that would promise people good luck if they forwarded the email to exactly four other people. She started by sending this email to four people. Each of those four people then forwarded the email to four people. Each of those sixteen people then forwarded the email to four people. Create a table and sketch a graph of the relationship between the two quantities. Explain what the coordinates in the table and on the graph represent. Identify key features of this function.
2. Charles owes his friend $35. He pays his friend back by paying him $5 a week. Create a table and sketch a graph of the relationship between the two quantities. Explain what the coordinates in the table and on the graph represent. Identify key features of this function.
3. The function $h\left(x\right)=-16x^{2}+45x+5$ describes the height $h$ in feet of a baseball x seconds after it is shot straight up into the air from a pitching machine. Create a table and sketch a graph of the relationship between the two quantities. Explain what the coordinates in the table and on the graph represent. Identify key features of this function.

Independent Practice

1. The function $h\left(x\right)=-16x^{2}+55x+2$ describes the height $h$ in feet of a football x seconds after it is kicked straight up into the air. Create a table and sketch a graph of the relationship between the two quantities. Explain what the coordinates in the table and on the graph represent. Identify key features of this function.
2. If one person does good deeds for three new people, then the three new people each do good deeds for three more new people. Next, nine people each do good deeds for three more new people, and so on. Create a table and sketch a graph of the relationship between the two quantities. Explain what the coordinates in the table and on the graph represent. Identify key features of this function.
3. Billy gets paid 8 dollars an hour to cut grass, plus $20 from his grandmother for cleaning her gutters. Create a table and sketch a graph of the relationship between the two quantities. Explain what the coordinates in the table and on the graph represent. Identify key features of this function.