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| 1. a. Using the table of values, then draw each exponential function. | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | **x** |  |  | **x** |  | | -3 |  | -3 |  | | -2 |  | -2 |  | | -1 |  | -1 |  | | 0 |  | 0 |  | | 1 |  | 1 |  | | 2 |  | 2 |  | | 3 |  | 3 |  |   **cart2.PNG** | |  |  |  |  |  | | --- | --- | --- | --- | --- | | **x** |  |  | **x** |  | | -3 |  | -3 |  | | -2 |  | -2 |  | | -1 |  | -1 |  | | 0 |  | 0 |  | | 1 |  | 1 |  | | 2 |  | 2 |  | | 3 |  | 3 |  |   **cart2.PNG** |
| b. What is y-intercept for each of the graphs? Label it on the plane.  c. As the x values increase what do you notice about the y values?  d. As the x values decrease what do you notice about the y values?  d. Do you think this graph will ever intersect with y =0 line (x axis)?  f. State the domain and range:   |  |  | | --- | --- | |  |  | | D: | D: | | R: | R: |   g. What are the common characteristics of these curves? | b. What is y-intercept for each of the graphs? Label it on the plane.  c. As the x values increase what do you notice about the y values?  d. As the x values decrease what do you notice about the y values?  d. Do you think this graph will ever intersect with y =0 line (x axis)?  f. State the domain and range:   |  |  | | --- | --- | |  |  | | D: | D: | | R: | R: |   g. What are the common characteristics of these curves? |

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| **Notes about Exponential Functions**  The exponential function  is to be added to our list of parent functions.  Exponential functions can be used to model population **growth** or the temperature of a liquid as it cools off.  When b > 1, the exponential function decreases to the left and increases to the right. This is called exponential growth.  When 0 < b < 1, the exponential function increases to the left and decreases to the right. This is called exponential decay.  The x-axis is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for all 4 graphs.  The equation of this line is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  The domain of  is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  The range of  is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  The y-intercept of  is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. |