**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_ Per. \_\_\_\_\_\_\_\_\_\_**

**U19 – Getting Ready for 9th Grade CWK #3**

*Graphing Exponential Using Tables*

**Directions:** Sketch the graph of each function using a table of values.

**1.** $y=2^{x}$ **2.** $y=3^{x}$

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**3.** $y=\left(\frac{1}{2}\right)^{x}$ **4.** $y=\left(\frac{1}{3}\right)^{x}$

****

**5. <span style='mso-tab-count:1'>**</span>One single bacteria lands on a kitchen counter.<span style="mso-spacerun: yes">  </span>It divides into two parts every 5 minutes.<span style="mso-spacerun: yes">  </span>Fill out the chart below to show how many bacterium are on the counter:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| # of 5 minute periods | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| # of bacteria | 1 | 2 | 4 | <![if !supportEmptyParas]> <![endif]> | <![if !supportEmptyParas]> <![endif]> | <![if !supportEmptyParas]> <![endif]> | <![if !supportEmptyParas]> <![endif]> | <![if !supportEmptyParas]> <![endif]> | <![if !supportEmptyParas]> <![endif]> | <![if !supportEmptyParas]> <![endif]> | <![if !supportEmptyParas]> <![endif]> | <![if !supportEmptyParas]> <![endif]> |

1. How many 5-minute periods are there in one hour?<span style="mso-spacerun: yes">  </span>\_\_\_\_\_
2. How many bacteria are on the counter after one hour?<span style="mso-spacerun: yes">  </span>\_\_\_\_\_\_\_

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1. Make a scatterplot of your data from the table above. Number and label the axes. Add a title to your scatterplot.

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1. Describe the pattern you see.<span style="mso-spacerun: yes">  </span>Include if the data increases, decreases, is linear, not linear, constant, or non-constant.

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Think about how you filled out your table.<span style="mso-spacerun: yes">  </span>4 can be written as 2 x 2 or 22.<span style="mso-spacerun: yes">  </span>8 can be written as 2 x 2 x 2 or 23.

<![if !supportEmptyParas]><![endif]>Express the number of bacteria after 4 five-minute periods using exponents.<span style="mso-spacerun: yes">  </span>\_\_\_

Express the number of bacteria after 5 five-minute periods using exponents.<span style="mso-spacerun: yes">  </span>\_\_\_

Express the number of bacteria after 12 five-minute periods using exponents.<span style="mso-spacerun: yes">  </span>\_\_\_

Express the number of bacteria after *x* five-minute periods using exponents.<span style="mso-spacerun: yes">  </span>\_\_\_

<![if !supportEmptyParas]> <![endif]>

Type your exponential expressions in your calculator.<span style="mso-spacerun: yes">  </span>How do your answers compare to the data in the chart?

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<![endif]>

22, 23, 24, and 212 are **exponential expressions.** $y=2^{x}$is an **exponential equation.**

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