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| **One Grain of Rice** NAME \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Common Ratio NOW-NEXT In the book *One Grain of Rice* by Demi, the main character Rani cleverly tricks the raja into giving rice to the village. Use the story from the book to answer the questions below.1. Estimate how many grains of rice you think Rani will have at the end of 30 days.

**2.** Use the chart below to record the number of grains of rice Rani would receive each day.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *Day 1***1***grain of rice* | *Day 2***2***grain of rice* | *Day 3**grain of rice* | *Day 4**grain of rice* | *Day 5**grain of rice* | ***Total After 5 Days*** |
| *Day 6**grain of rice* | *Day 7**grain of rice* | *Day 8**grain of rice* | *Day 9**grain of rice* | *Day 10***512***grain of rice* | ***Total After 10 Days*** |
| *Day 11**grain of rice* | *Day 12**grain of rice* | *Day 13**grain of rice* | *Day 14**grain of rice* | *Day 15**grain of rice* | ***Total After 15 Days*** |
| *Day 16**grain of rice* | *Day 17**grain of rice* | *Day 18***131,072***grain of rice* | *Day 19**grain of rice* | *Day 20**grain of rice* | ***Total After 20 Days*** |
| *Day 21**grain of rice* | *Day 22**grain of rice* | *Day 23**grain of rice* | *Day 24**grain of rice* | *Day 25**grain of rice* | ***Total After 25 Days*** |
| *Day 26**grain of rice* | *Day 27**grain of rice* | *Day 28**grain of rice* | *Day 29**grain of rice* | *Day 30**grain of rice* | ***Total After 30 Days*** |

1. If the story continued and you know how many grains of rice Rani receives on Day 30, how can you determine how many grains of rice she would receive on Day 31?
2. How can you determine how many grains of rice she would receive on Day 35?
3. How can you determine how many grains of rice she would receive on Day 40?
4. If you know how many grains of rice she receives on a certain day, how can you determine how many grains of rice she will receive 2 days later? . . . 10 days later?
5. Write a sentence that describes how many grains of rice Rani receives each day.
6. What number is being used to advance the pattern? Is this a common difference or a common ratio?
7. Use the words *NOW* and *NEXT* to write a rule to express the pattern. The ***NOW-NEXT*** **form** is the recursive process of getting from one number to the next number in the sequence.
8. Use the pattern you discovered to write an explicit equation for the rice acquired each day. (number of day, rice received)?
9. Write a sentence that describes the total number of grains of rice Rani will receive through a certain number of days.
10. Test each of your equations to see if they generate the values in the table. Were your algebraic equations correct? If not, modify your equations and test them until you are certain they are correct. Record the changes you make so that you can explain to others how you arrived at your final equations.

C:\Documents and Settings\kkelly3\Application Data\PixelMetrics\CaptureWiz\Temp\3.jpg1. Graph the first ten days of the rice reward on the graph to the right. Be sure to label your axes and title your graph. Is this a graph of a linear function or an exponential function?

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