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.

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
<th>Total After 5 Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 grain of rice</td>
<td>2 grains of rice</td>
<td>grains of rice</td>
<td>grains of rice</td>
<td>grains of rice</td>
<td></td>
</tr>
<tr>
<td>Day 6</td>
<td>Day 7</td>
<td>Day 8</td>
<td>Day 9</td>
<td>Day 10</td>
<td>Total After 10 Days</td>
</tr>
<tr>
<td>grains of rice</td>
<td>grains of rice</td>
<td>grains of rice</td>
<td>grains of rice</td>
<td>512 grains of rice</td>
<td></td>
</tr>
<tr>
<td>Day 11</td>
<td>Day 12</td>
<td>Day 13</td>
<td>Day 14</td>
<td>Day 15</td>
<td>Total After 15 Days</td>
</tr>
<tr>
<td>grains of rice</td>
<td>grains of rice</td>
<td>grains of rice</td>
<td>grains of rice</td>
<td>grains of rice</td>
<td></td>
</tr>
<tr>
<td>Day 16</td>
<td>Day 17</td>
<td>Day 18</td>
<td>Day 19</td>
<td>Day 20</td>
<td>Total After 20 Days</td>
</tr>
<tr>
<td>grains of rice</td>
<td>grains of rice</td>
<td>131,072 grains of rice</td>
<td>grains of rice</td>
<td>grains of rice</td>
<td></td>
</tr>
<tr>
<td>Day 21</td>
<td>Day 22</td>
<td>Day 23</td>
<td>Day 24</td>
<td>Day 25</td>
<td>Total After 25 Days</td>
</tr>
<tr>
<td>grains of rice</td>
<td>grains of rice</td>
<td>grains of rice</td>
<td>grains of rice</td>
<td>grains of rice</td>
<td></td>
</tr>
<tr>
<td>Day 26</td>
<td>Day 27</td>
<td>Day 28</td>
<td>Day 29</td>
<td>Day 30</td>
<td>Total After 30 Days</td>
</tr>
<tr>
<td>grains of rice</td>
<td>grains of rice</td>
<td>grains of rice</td>
<td>grains of rice</td>
<td>grains of rice</td>
<td></td>
</tr>
</tbody>
</table>

3. 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?

How can you determine how many grains of rice she would receive on Day 35?

How can you determine how many grains of rice she would receive on Day 40?

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?
4. Write a sentence that describes how many grains of rice Rani receives each day.

5. Write a sentence that describes the total number of grains of rice Rani will receive through a certain number of days.

6. Write each of your sentences from Questions 4 and 5 in the form of an equation using only numbers and symbols.

7. 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.