1. You are working in a lab that studies mold growth on bread. You are interested in how the size of a region of mold grows over time. For a certain specimen, you begin with a roughly circular moldy region with a diameter of 1.5 cm. The diameter of the moldy region appears to be growing by about 0.5 cm each day.

a) Construct a table of data for the diameter of the moldy region for the first 6 days (starting at $x = 0$ days). Make a plot of your data on the grid provided. Let $x$ represent time (in days) and $y$ represent the diameter of the moldy region. Be sure to label each axis.

\[
\begin{array}{c|c}
 x & y \\
 0 & 1.5 \\
 1 & 2.0 \\
 2 & 2.5 \\
 3 & 3.0 \\
 4 & 3.5 \\
 5 & 4.0 \\
 6 & 4.5 \\
\end{array}
\]

b) Write an equation that describes the mold diameter at any time.

\[ y = 1.5 + 0.5x \]

c) Identify the slope for your equation in part (b). Explain that the slope means in this context (situation).

\[ (1, 0.5) \]

d) Another moldy region begins with a diameter of 0.5 cm and appears to double in diameter each day. Construct a table of data for the diameter of this moldy region for the first 4 days (starting at $x = 0$ days). Plot the data on the same graph, using a different symbol (like a triangle) or color for the points.

\[
\begin{array}{c|c}
 x & y \\
 0 & 0.5 \\
 1 & 1.0 \\
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 3 & 4.0 \\
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```
0 1 2 3 4 5 6
1.5 2.25 3.375 4.5
```

b) Write an equation that describes the mold diameter at any time.

$$y = x \times 1.5$$

c) Identify the slope for your equation in part (b). Explain that the slope means in this context (situation).

$$\frac{\text{rise}}{\text{run}} = \frac{1}{1.5}$$

d) Another moldy region begins with a diameter of 0.5 cm and appears to double in diameter each day. Construct a table of data for the diameter of this moldy region for the first 4 days (starting at $x = 0$ days). Plot the data on the same graph, using a different symbol (like a triangle) or color for the points.
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<table>
<thead>
<tr>
<th>( x )</th>
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<tbody>
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<td>4</td>
<td>3.5</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

b) Write an equation that describes the mold diameter at any time.

\[
y = 0.5x + 1.5
\]

c) Identify the slope for your equation in part (b). Explain that the slope means in this context (situation).

\( y \) is a linear line. It means that the mold is growing at a constant steady rate.

d) Another moldy region begins with a diameter of 0.5 cm and appears to double in diameter each day. Construct a table of data for the diameter of this moldy region for the first 4 days (starting at \( x = 0 \) days). Plot the data on the same graph, using a different symbol (like a triangle) or color for the points.

<table>
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