MPM1D – Chapter 6 (Interpreting Graphs) Review Sheet

Name: ___________________________ Date: ___________________________

1. Interpreting Graphs:
   - The most important parts of a graph when interpreting the meaning are: ___the axes___
   - A qualitative graph is a graph (with or without) numbers on the axes
   - A quantitative graph is a graph (with or without) numbers on the axes
   - When describing a quantitative graph we need to have information about:
     1. Distance ________________
     2. Time ________________
     3. Direction ________________
     4. Speed ________________

     Speed = \frac{\text{Distance}}{\text{Time}}

2. Lines of Best Fit:
   - A line of best fit must follow the ___Trend___ in the data.
   - A line of best fit should split the points ___equally___.
   - If its rate of change is positive the correlation is ___positive___.
   - If its rate of change is negative the correlation is ___negative___.
   - If we create a line of best fit using a computer and we get an R-value...
     - If the R-value is close to 1 or -1 then we have a ___strong___ correlation
     - If the R-value is close to 0 we have ___weak___ correlation
     - If the R-value is positive we have a ___positive___ correlation
     - If the R-value is negative we have a ___negative___ correlation

3. Intersecting Lines:
   - When we have a problem dealing with the intersection of two lines we need to have information about:
     1. What happens BEFORE the point
     2. _______AT_______
     3. _______AFTER_______

Example Questions:
1. In an investigation, Buster holds a motion detector, points it at a wall and walks towards the wall. Buster walks slowly at first and then speeds up as he approaches the wall. Which of the following graphs would be produced on the graphing calculator?

   ![Graph Options]

   - [a] Distance from wall (m) vs. time (s)
   - [b] Distance from wall (m) vs. time (s)
   - [c] Distance from wall (m) vs. time (s)
   - [d] Distance from wall (m) vs. time (s)
2. Wing length is a reliable method for determining the age of young birds. Below is an example of data for a particular species.

<table>
<thead>
<tr>
<th>Wing length (cm)</th>
<th>Age (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5</td>
<td>4</td>
</tr>
<tr>
<td>3.1</td>
<td>8</td>
</tr>
<tr>
<td>3.2</td>
<td>10</td>
</tr>
<tr>
<td>4.1</td>
<td>12</td>
</tr>
<tr>
<td>5.2</td>
<td>16</td>
</tr>
</tbody>
</table>

Determine the age of a bird with a wing length of 3.6 cm. You may use the grid if you wish. Justify your answer.

3. Smudger walks along a line leading from a motion sensor. The graph below shows information about Smudger’s walk. Find Smudger’s speed in metres per second as he walks towards the motion sensor.

\[
\text{Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{3}{1.5} = 2 \text{ m/s}
\]

4. At Lowell High School, the cost to attend special events depends on whether or not a student has purchased a $10 discount card.

- **Option A**: The student buys a discount card. The cost is $5 per event.
- **Option B**: The student does not buy a discount card. The cost is $7.50 per event.

Graph the relationship between total cost and number of events for each option on the grid. Determine the conditions under which a student at Lowell High School should choose each option. Justify your answer.

If attending less than 4 events, choose option B.
If attending more than 4 events, choose option A.
If attending exactly 4 events you can choose either.