MATH 092     Supplemental HW
Due by Friday, February 7th

Problem A

1. According to biological research, the rate of oxygen consumption by Colorado beetles is related to the temperature. The following table shows some of the related values:

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate of O₂ consumption (mm³/min)</td>
<td>90</td>
<td>125</td>
<td>200</td>
<td>300</td>
<td>375</td>
</tr>
</tbody>
</table>

a) Is the rate of oxygen consumption a function of temperature?

b) Is temperature a function of the rate of oxygen consumption?

2. The following table gives P, the percent humidity, as a function of t, the number of hours after midnight.

<table>
<thead>
<tr>
<th>t, hours after 12 A.M.</th>
<th>0</th>
<th>5</th>
<th>7</th>
<th>12</th>
<th>15</th>
<th>20</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td>P, percent humidity</td>
<td>56</td>
<td>78</td>
<td>50</td>
<td>20</td>
<td>22</td>
<td>50</td>
<td>44</td>
</tr>
</tbody>
</table>

a) Is P a function of t?

b) Is t a function of P?

3. A store sells blankets each of which is large enough to cover up to three children. Of course 1, 2, or 3 children may actually lie under any given blanket.

a) Is the number of blankets a function of the number of children?

b) Is the number of children a function of the number of blankets?

Problem B

Let P(t) represent the population (in thousands) of a city t years after 1950. Interpret the practical meaning of each of the following statements.

a) P(27) = 38
b) 2.28 = P(2)
c) P(41) = P(43)
d) P(-44) = 0.89

Problem C

1. Is it possible to sketch the graph of a function containing NO vertical intercept? If so, sketch one. If not, explain why not.

2. Is it possible to sketch the graph of a function containing TWO vertical intercepts? If so, sketch one. If not, explain why not.