Relations and Functions Quiz Review (Sections 1.6, 1.7, 4.1, 4.7)

Topics included on the quiz:  (Use your textbook, notes and homework for additional review).
Coordinate plane – x-axis, y-axis, origin, quadrants, ordered pairs, graphing
Identifying Domain/Range of relations/functions
Independent/Dependent Variables
Is the relation a function or not?  Vertical Line Test
Function Notation:  function tables; evaluating functions for specific values of x; given the output of a function, solve for x (input)

Coordinate Plane

1)  Label the x-axis and y-axis.

For questions 2 through 6:
Graph and label each ordered pair on the coordinate plane.  Name the quadrant in which each point is located.  If it is not in a quadrant, write the axis on which it is located.

2)  G (4, 3)

3)  H (-2, -5)

4)  I (0, 3)

5)  J (6, -5)

6)  K (-4, 0)
Domain/Range

7) List all pairings that represent Domain and Range.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example:</td>
<td>input</td>
</tr>
</tbody>
</table>

For #8-9, determine the domain.

8) \( \{(0, 5), (2, -4), (7, 0)\} \)

<table>
<thead>
<tr>
<th>(x)</th>
<th>(y)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>-5</td>
<td>5</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>-10</td>
</tr>
</tbody>
</table>

9) \( y = 2x - 4; \)  

<table>
<thead>
<tr>
<th>(x)</th>
<th>(y)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>-10</td>
</tr>
</tbody>
</table>

10) Identify the range of the function: \( y = 2x - 4; \)  

\( \text{Domain} = \{0, 1, 4\} \)
**Independent/Dependent Variable**

11) You are making treat bags for a birthday party. Each bag will contain 6 items.
   a) Write a rule for the total number of items used as a function of the number of bags created.

   b) Identify the independent and dependent variables.

   c) How many items will you need if you need to make 12 treat bags for the party?

12) Your grandma has a pine tree in her yard that drops a lot of pinecones. She will pay you $0.10 for each pinecone you pick up and bag. Last week you made $5 picking up pinecones.
   a) Write a rule for the total amount of money you could earn as a function of the number of pinecones you pick up.

   b) Identify the independent and dependent variables.

   c) If you pick up 200 pinecones this week, how much money have you made in total picking up pinecones?

**Function Notation**

13) Given \( f(x) = 2x + 4 \), find \( f(6) \)

14) Given \( f(x) = 2x + 4 \), if the output is 12, what is the input? (Solve for \( x \))
15) Complete the function table for \( f(x) = 12 - 2x \)

<table>
<thead>
<tr>
<th>x</th>
<th>( f(x) = 12 - 2x )</th>
<th>f(x)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Functions**

Is each relation a function or not? If it is not a function, tell why.

16) \( \{(4, -5), (0, -9), (1, 0), (7, 0)\} \)

17) \( \{(-2, -5), (4, 9), (1, 10), (-2, 4)\} \)

18) \( \{(4, -5), (0, -5), (11, 30), (17, 10)\} \)

19)

20)

21)

22) **Input**  | **Output**
---|---
8  | 6  
3  | 26 
12 | 9  

23) **Input**  | **Output**
---|---
2  | -5  
5  | 12 
-3 | 12 

24)