Domain & Range Homework: DUE NEXT CLASS

#1 – 4. Decide a reasonable domain and range for the following situations. Then determine whether the related functions are continuous or discrete.

1. Joe had a summer job that pays $7.00 an hour and he worked between 15 and 35 hours every week. His weekly salary can be modeled by the equation: \( S = 7h \), where \( S \) is his weekly salary and \( h \) is the number of hours he worked in a week.

2. The surface area of a cube can be found using the following formula: \( A = 6s^2 \), where \( A \) represents the surface area of the cube and \( s \) represents the length of one edge. Your geometry teacher wants you to draw a cube that has a length between 1 and 5 inches.

3. You conduct an experiment on the speed of sound waves in dry air at 86º. You record your data in a table (pictured below).

4. A 20-gallon bathtub is draining at a rate of 2.5 gallons per minute. The number of gallons \( g \) remaining is a function of the number of minutes \( m \).

5. The table below represents the height of a building as a function of the number of stories the building has.

<table>
<thead>
<tr>
<th>Number of Stories</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height of Building (feet)</td>
<td>12</td>
<td>24</td>
<td>36</td>
<td>48</td>
<td>60</td>
</tr>
</tbody>
</table>

6. The drama club is planning a trip to an amusement park. They are taking a bus which holds 32 people. It will cost $25 for parking and tickets to enter the park and $22.50 per person. The equation that models this situation is \( c(n) = 22.5n + 25 \), where \( c \) represents the cost for the group to go to the park and represents the number of people who go on this excursion.
7. A moving company charges $23.75 per quarter hour, with a minimum of 2 and a half hours per job.

8. A framing store determines the price of glass based on the area $a$ of the picture to be framed, plus an additional $6 for installation. The function $t(a)$ describes the total cost of the frame, with glass and installation, based on the area of the picture.

**#9 – 12.** Graph each set on a number line and rewrite in interval notation.

9. $x \geq 4$  
10. $2 < x \leq 9$

11. $x \neq 8$  
12. $x \neq 0$ and $x \leq 6$

**#13 – 18.** Use interval or set notation to represent each set of numbers.

13. $(-\infty, \infty)$

14. $(-\infty, \infty)$

15. $(-\infty, \infty)$

16. $(-\infty, \infty)$

17. $(-9, 9)$

18. $(-16, 16)$

*Bonus!: Write in two different ways.*
#19 – 22. Use interval notation to write the domain and range for each graph.

19.

20.

21.

22.

#23-25 Graph each set on a number line.

23. \( \{x \mid x = -3, -1, 3, 4, 7, 8 \} \)

24. \( \{r \mid r = -6, -5, -4, -3, -2, -1, 0 \} \)

25. \( \{t \mid t = 0, 1, 2, 3, \ldots, 10 \} \)