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## 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: $S=7 h$, 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: $A=6 s^{2}$, 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 $86^{\circ}$. 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 $m$.

| Input <br> Time, <br> (seconds) | Output <br> Distance, <br> $\boldsymbol{d}$ (miles) |
| :---: | :---: |
| 2 | 0.434 |
| 4 | 0.868 |
| 6 | 1.302 |
| 8 | 1.736 |
| 10 | 2.170 |

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

| Number of Stories | 1 | 2 | 3 | 4 | 5 |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Height of Building (feet) | 12 | 24 | 36 | 48 | 60 |

6. The drama club is planning a trip to an amusement par. 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 $c(n)=22.5 n+25$, 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. 


14.

15.

16.

17.

18.


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

21.

20.

22.

\#23-25Graph 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. $\{t \mid t=0,1,2,3, \ldots .10\}$

