Honors Algebra 2
Discrete and Continuous Functions

Name: _____
Date: _____

You will need graph paper for this assignment.

Make a table using the **given** domain. Graph the function for the **given** domain. Classify the function as discrete or continuous. Then state the range using either set-builder notation or interval notation (which ever "matches" the notation the domain was given).

1. $y = 2x + 3$ domain: $\{-2, -1, 0, 1, 2\}$

2. $f(x) = \frac{1}{2}x - 4$ domain: $\{-4, -2, 0, 2, 4\}$

3. $y = -3x + 9$ domain: $\{x | x < 5\}$

4. $h(x) = \frac{1}{3}x + 6$ domain: $\{x | x \geq -6\}$

5. $y = \frac{5}{x}$ domain: $\{x | \ 0.4 \leq x \leq 10\}$

6. $y = \frac{2}{3}x + 4$ domain: $\{x | -3 < x < 9\}$

7. $y = -0.4x + 5$ domain: $\{x | -2 \leq x \leq 6\}$

8. $p(x) = |x - 3|$ domain: $\{x | \ 0 \leq x \leq 7\}$

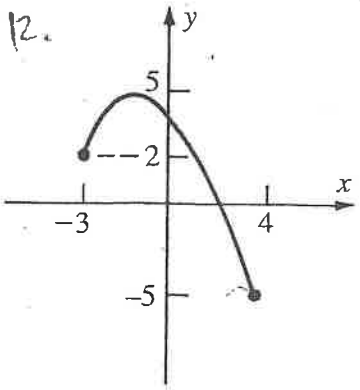
9. $g(x) = |x + 2|$ domain: $\{x | x \in \mathbb{R}\}$

10. $y = x^2 - 5x + 7$ domain: $\{x | x \in W \text{ and } x \leq 6\}$

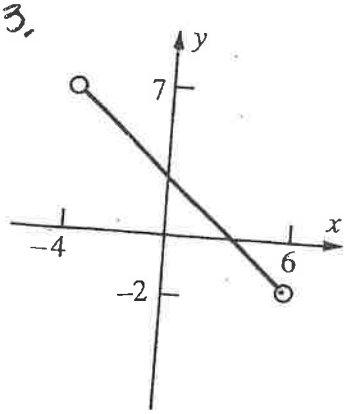
11. $y = -x^2 + 5.4x + 1$ domain: $\{x | x > 0\}$

For problems 12 – 15, state the domain and range of the function.

12.



13.



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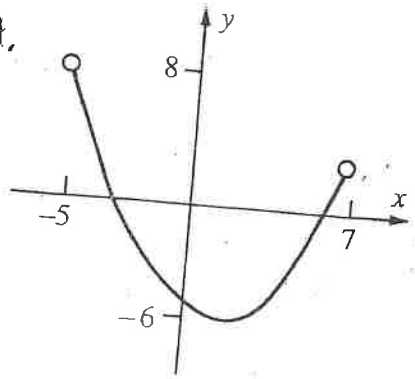

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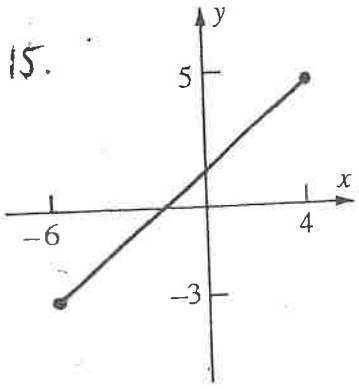

For problems 16-19, sketch a graph of a continuous function with the given domain and range.

16. domain: $\{x | \ 3 \leq x \leq 7\}$ and range: $y | \ 1 \leq y \leq 10\}$

17. domain: $\{x | \ 1 \leq x \leq 4\}$ and range: $\{y | -3 \leq y \leq 5\}$

18. domain: $\{x|\ 2 < x < 3\}$ and range: $\{y|\ 5 < y < 7\}$

19. domain: $\{x|\ 0 < x < 5\}$ and range: $\{y|\ 2 < y \leq 7\}$ Be clever!

For problems 20-23, write the function and graph the function described. State the domain and range either in set-builder or interval notation. Tell whether the function is discrete or continuous.

20. Jacob walks at an average speed of 3.5 miles per hour. The function $j(x)$ gives the distance (in miles) Jacob walks in x hours.

21. A ticket to ride a carnival carousel costs \$1.25. The function $b(x)$ gives the cost of riding the carousel x times.

22. A family has 3 gallons of milk delivered every Thursday. The function $m(x)$ gives the total amount of milk that is delivered to the family after x weeks.

23. A steel cable that is $\frac{3}{8}$ inch in diameter weighs 0.24 pounds per foot. The function $w(x)$ gives the weight of x feet of steel cable.