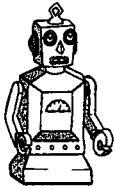


3.1 and 3.2 Explain – Functions Day 2- Notes

Essential Question: How do you find the domain and range of continuous data?

Main Ideas/ Questions	Notes/Examples
What You Will Learn	<ul style="list-style-type: none"> To find the domain and range of a function in mathematical problems and real-world situations.

Domain and Range for Continuous Data

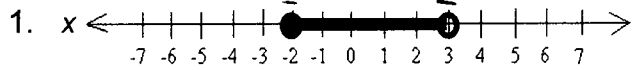


"DoLoR the "RoBoT"
Domain Left to Right Range Bottom to Top

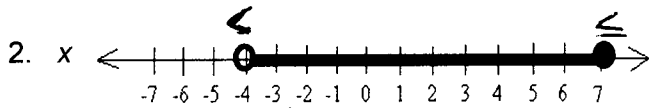
How is it written for continuous data?

Open Circle ○ → <
 Closed Circle ● → ≤

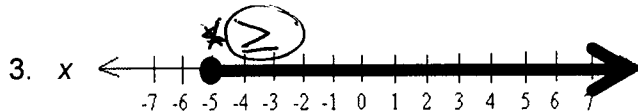
Practice: Find the Domain: Look at the x-axis.



Domain: $-2 \leq x < 3$

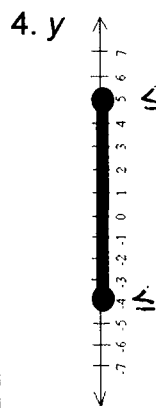


Domain: $-4 < x \leq 7$

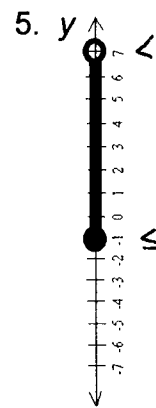


Domain: $x \geq -5$

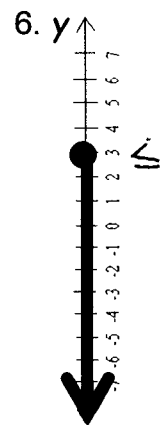
Practice: Find the Range: Look at the y-axis.



Range: $-4 \leq y < 5$

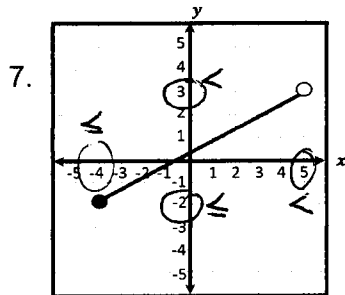


Range: $-1 \leq y < 7$

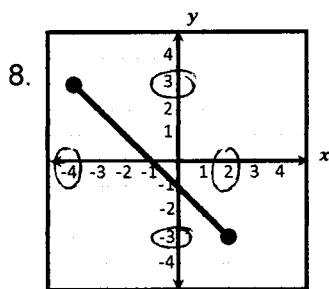


Range: $y \leq 3$

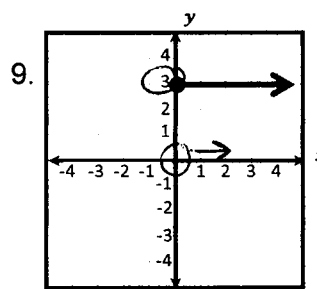
Practice: Find the domain and range.



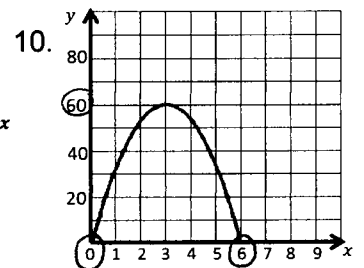
Domain: $-4 \leq x < 5$
 Range: $-2 \leq y < 3$



Domain: $-4 \leq x \leq 2$
 Range: $-3 \leq y \leq 3$



Domain: $x \geq 0$
 Range: 3



Domain: $0 \leq x \leq 6$
 Range: $0 \leq y \leq 60$

3.1 and 3.2 Explain – Functions Day 2- Notes

Reasonable Domain and Range

The set of all possible values of the independent and dependent variables that make sense in a real-world situation.

11. Jane has 3 cereal bars in her backpack. A cereal bar contains 130 calories. The number of calories consumed is a function of the number of bars eaten.

a. Define Variables: (# bars eaten, number of calories consumed)

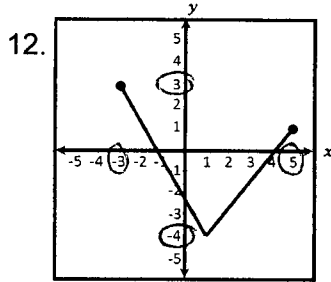
b. Write an equation to represent the total number of calories consumed: $y = 130x$

c. Reasonable Domain: $\{0, 1, 2, 3\}$

d. Reasonable Range: $\{0, 130, 260, 390\}$

x	y
0	0
1	130
2	260
3	390

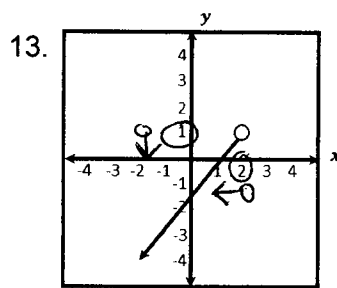
Discrete and Continuous Functions Practice: Determine if the given functions are discrete or continuous and then find the domain and range.



Discrete/Continuous

Domain: $-3 \leq x \leq 5$

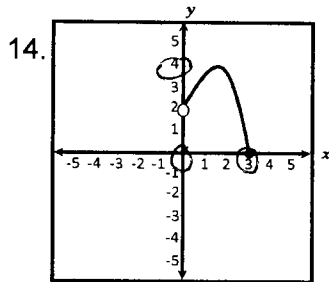
Range: $-4 \leq y \leq 3$



Discrete/Continuous

Domain: $x < 2$

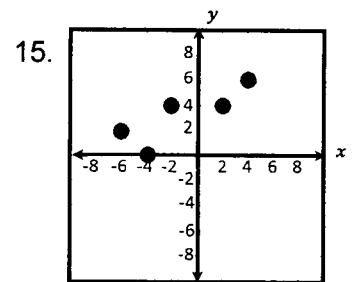
Range: $y < 1$



Discrete/Continuous

Domain: $0 < x \leq 3$

Range: $0 \leq y \leq 4$



Discrete/Continuous

Domain: $\{-6, -4, -2, 2, 4\}$

Range: $\{0, 2, 4, 6\}$

16. Billiard World charges \$5 to rent a pool table plus \$10 per hour of game play. Customers are charged for the full hour. The total amount charged to rent the table is a function of the number of hours the table is rented. John plans on renting the pool table for at least two hours but no more than 4.

a. Discrete or Continuous? Explain. Discrete. Charged for full hour.

b. Define Variables: (# hours table is rented, total amt charged to rent table)

c. Write an equation to represent the total cost to rent a table: $y = 10x + 5$

d. Reasonable Domain: $\{2, 3, 4\}$

e. Reasonable Range: $\{25, 35, 45\}$

x	y
2	$10(2) + 5 = 25$
3	$10(3) + 5 = 35$
4	$10(4) + 5 = 45$

17. A fundraising organization will donate \$250 plus half of the money it raises from a charity event.

a. Discrete or Continuous? Explain. Continuous – can donate any amt. includes All #s

b. Define Variables: (donations, \$ raised)

c. Write an equation to represent the total amount that will be donated: $\frac{1}{2}x + 250 = y$

d. Reasonable Domain: $x \geq 0$

e. Reasonable Range: $y \geq 250$

3.1 & 3.2

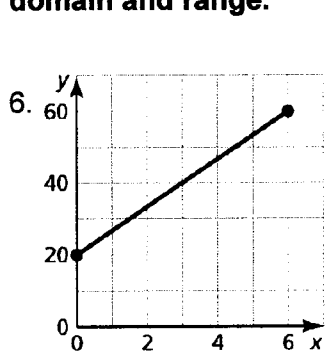
Day 2 – Continuous Functions

In Exercises 1-5, determine whether the function is discrete or continuous.

- Discrete or Continuous** $y = 2x + 3$; domain: $\{-2, -1, 0, 1, 2\}$
- Discrete or Continuous** $y = -0.5x$; domain: $x > -2$
- Discrete or Continuous** Amanda walks at an average speed of 3.5 miles per hour.
- Discrete or Continuous** The number of calories burned while working out.
- Discrete or Continuous**

<i>Number of Bags, x</i>	2	4	6
<i>Number of Marbles, y</i>	20	40	60

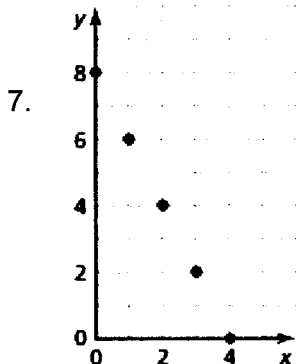
In Exercises 6 - 13, determine whether the function is discrete or continuous and then find the domain and range.



Discrete/Continuous

Domain:

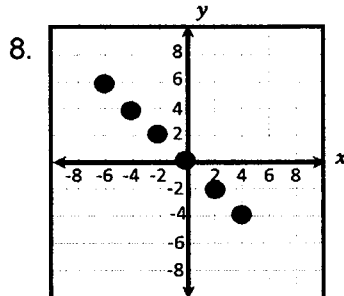
Range:



Discrete/ Continuous

Domain:

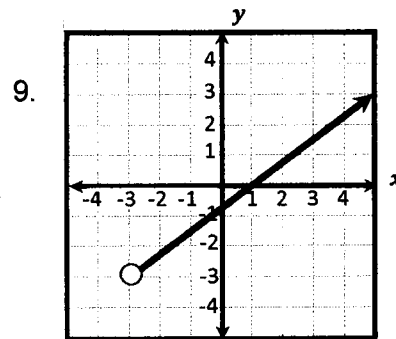
Range:



Discrete/ Continuous

Domain:

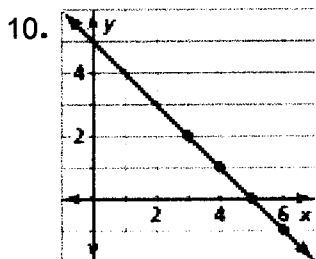
Range:



Discrete/Continuous

Domain:

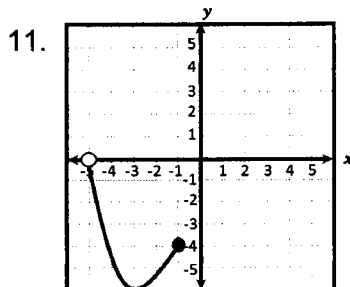
Range:



Discrete/Continuous

Domain:

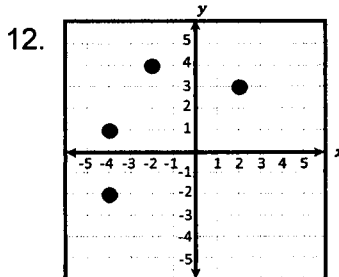
Range:



Discrete/ Continuous

Domain:

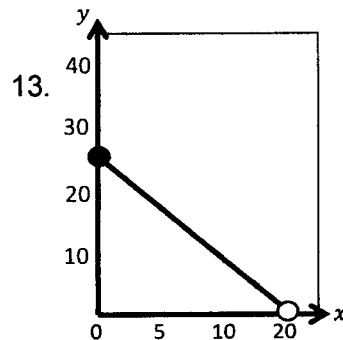
Range:



Discrete/ Continuous

Domain:

Range:



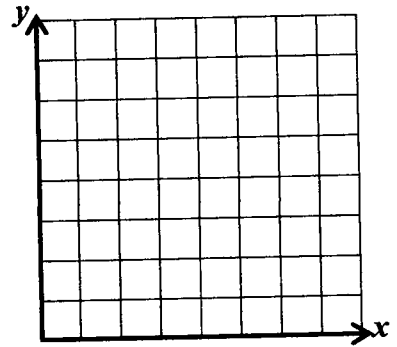
Discrete/Continuous

Domain:

Range:

14. A 20-gallon bathtub is draining at a rate of 2.5 gallons per minute. The number of gallons remaining is a function of the number of minutes.

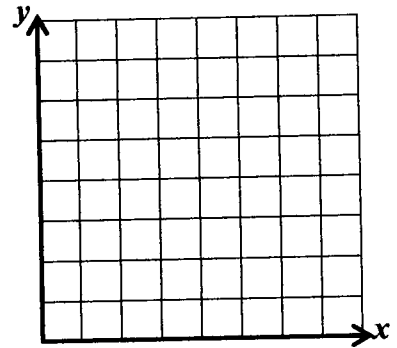
- Is the function discrete or continuous? Explain.
- Find the domain of the function.
- Find the range of the function.
- Graph the function.



15. The table represents the cost of having your dog groomed and buying extra services. You plan on getting your dog groomed. You have \$67 to spend.

Extra Services, x	Total Cost, y
0	\$30
1	\$35
2	\$40
4	\$50
7	\$65

- Is the function discrete or continuous? Explain.
- Find the domain of the function.
- Find the range of the function.
- Graph the function.



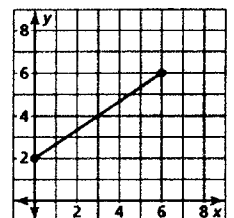
16. The cost y of a taxi ride is a function of the number of miles m traveled is represented by the linear function $y = 3.5x + 2.8$. You have enough money to travel at most 20 miles in the taxi.

- Discrete or Continuous? Explain.
- Define Variables: (_____ , _____)
- Reasonable Domain: _____
- Reasonable Range: _____

17. Kelsey received a gift card for \$20 to Games R Us. She plans to buy at least 1 doll but might want to buy more. Each doll costs \$3.

- Discrete or Continuous? Explain.
- Define Variables: (_____ , _____)
- Write an equation to represent the amount remaining on the gift card: _____
- Reasonable Domain: _____
- Reasonable Range: _____

18. Describe and correct the error in the statement about the domain.



The graph ends at $x = 6$, so the domain is discrete.