

Chapter 1 Exam Review

Algebra 1B

1. Solve $2x - (4 - 5x) = 17$.
- $$\begin{aligned} 2x - 4 + 5x &= 17 \\ 7x - 4 &= 17 \\ 7x - 4 + 4 &= 17 + 4 \\ 7x &= 21 \\ \frac{7x}{7} &= \frac{21}{7} \\ x &= 3 \end{aligned}$$
2. Solve $-2x + 5 = 3 - (x - 8)$.
- $$\begin{aligned} -2x + 5 &= 3 - x + 8 \\ -2x + 5 &= 11 - x \\ -2x + 5 + x &= 11 - x + x \\ -x + 5 &= 11 \\ -x + 5 - 5 &= 11 - 5 \\ -x &= 6 \\ \frac{-x}{-1} &= \frac{6}{-1} \\ x &= -6 \end{aligned}$$
3. Using the function $G(x) = \frac{32(x-12)}{x-3}$, find $G(5)$.
- ↑ Plug in 5 for x!
- $$\frac{32(5-12)}{5-3} = \frac{32(-7)}{2} = \frac{-224}{2} = -112$$
4. Using the function $P(x) = \frac{3x(x-12)}{8}$, find $P(20)$.
- ↑ Plug in 20 for x!
- $$\frac{3 \cdot 20(20-12)}{8} = \frac{60(8)}{8} = \frac{480}{8} = 60$$
5. Solve the equation for y : $3x - 2y = 12$.
- Get "y" alone!
- $$\begin{aligned} 3x - 2y &= 12 \\ -3x \quad -3x & \\ \hline -2y &= 12 - 3x \\ \frac{-2y}{-2} &= \frac{12 - 3x}{-2} \\ y &= -6 + 1.5x \end{aligned}$$
6. Solve the equation for x : $y = 2x - 3$.
- Get "x" alone!
- $$\begin{aligned} y &= 2x - 3 \\ \frac{1}{2}y + 1.5 &= x \end{aligned}$$
- $$\frac{1}{2}y + 3 = 2x$$

7. Josie receives an inheritance and splits the money in several different ways. She puts $\frac{2}{5}$ of it into a savings account, uses $\frac{1}{3}$ of it to purchase U.S. Savings Bonds, and sets $\frac{1}{4}$ of it aside for a car. This leaves \$36 to spend shopping. How much was the inheritance worth?

$$\frac{2}{5}i + \frac{1}{3}i + \frac{1}{4}i + 36 = i$$

$$\frac{59}{60}i + 36 = 1i$$

$$\frac{59}{60}i - \frac{59}{60}i + 36 = 1i - \frac{59}{60}i$$

$$36 = \frac{1}{60}i$$

$$\frac{36}{(1/60)} = \frac{1}{60}i \cdot 60$$

$$2160 = i$$

8. At Waterfront Community College, $\frac{1}{4}$ of the students have a healthcare-related major, $\frac{3}{8}$ of the students have a technology-related major, and $\frac{1}{3}$ of the students have a major that is neither healthcare nor technology-related. Only 42 students are undecided. How many students attend Waterfront?

$$\frac{1}{4}S + \frac{3}{8}S + \frac{1}{3}S + 42 = S$$

$$\frac{\cancel{23}}{\cancel{24}}S + 42 = 1S$$

$$-\frac{\cancel{23}}{\cancel{24}}S$$

$$42 = \frac{1}{24}S$$

$$1008 = S$$

9. Mark receives an electric bill for \$45. A late fee of \$2 per day is added for each day past due. Write an equation for the total bill b for each day d the bill is delinquent.

$$45 + 2d = b$$

10. At 3pm in Orlando, FL, the temperature is 88° . It cools by 2 degrees each hour for the rest of the night. Write an equation for the temperature t after h hours.

$$88 - 2h = t$$

11. In the expression $3 - 8^2 \cdot 4 - 1(2 + 5)^{-7}$ list out the correct order for the operations.

1. $2 + 5 = 7$

2. $8^2 = 64$

3. $-1 \cdot 7 = -7$

4. $3 - 64 = -61$

5. $-7 \div -61 = \boxed{-.115}$

12. In the expression $4 \cdot 2 - (-6 + 8)^3 + 2$ list out the correct order for the operations.

1. $-6 + 8 = 2$

2. $2^3 = 8$

3. $4 \cdot 2 = 8$

4. $8 - 8 = 0$

5. $0 + 2 = \boxed{2}$

13. Is the relation $\{(1, 4), (2, 3), (-1, 6), (4, 3), (0, 0)\}$ a function? Why or why not?

Yes, each x-value is only paired to a single y-value.

* (can't have any repeats in the domain)

14. Is the relation $\{(1, 2), (3, 1), (-2, -6), (1, 5)\}$ a function? Why or why not?

No, the x-value 1 is paired w/ 2 & also w/ 5.

15. Does the table below represent a function? Why or why not?

x	-4	-3	-2	-2	-1	0	1
y	25	30	35	40	45	50	55

No, the x-value -2 is paired w/ 35 & also w/ 40.

16. Identify the domain and range: $\{(0, 1), (-5, 3), (2, 6), (-7, 1)\}$.

X's Domain: -7, -5, 0, 2

Y's Range: 1, 3, 6

17. Mrs. Merritt has 30 pieces of candy. She gives 2 pieces to each of my students and has 6 pieces left over.

a) Write an equation to represent the situation.

$$30 - 2s = 6$$

b) How many students does Mrs. Merritt have?

$$\begin{array}{r} 30 - 2s = 6 \\ -30 \quad -30 \\ \hline -2s = -24 \\ \quad -2 \quad -2 \\ \hline s = 12 \end{array}$$

In 18-20, refer to the table below. Let $D(x)$ represent the population of dogs and $C(x)$ represent the population of cats in Jenison in the year x .

18. Find $D(2012)$. Explain what this value represents.

In 2012 the population of dogs in Jenison was 4,802.

19. Calculate $D(2014) - C(2014)$. Explain this value.

$$5682 - 4002 = 1680$$

There were 1680 more cats than dogs in 2014.

20. Calculate $\frac{C(2014) - C(2010)}{2014 - 2010}$. Explain what this value represents.

$$\frac{4002 - 3560}{4} = \frac{442}{4} = 110.5$$

The # of cats grew by ≈ 110 over the course of 4 years (from 2010 to 2014).

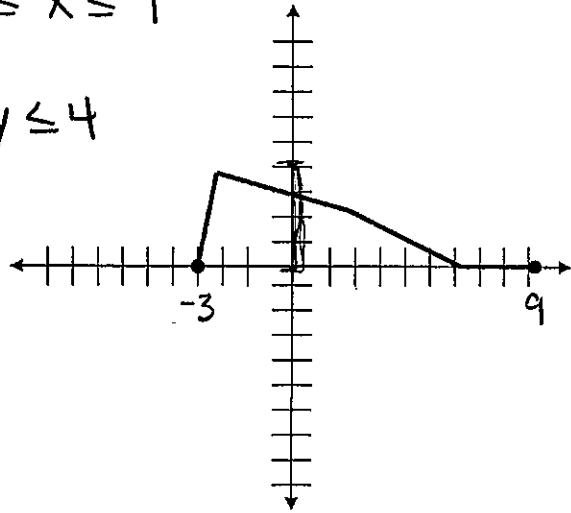
	Cats	Dogs
2010	3,560	4,590
2011	3,610	4,670
2012	3,780	4,802
2013	3,804	5,010
2014	4,002	5,682

Name: _____ Hour: _____

21. Give the domain and range of the function shown below.

X'S Domain: -3 to $9 \rightarrow -3 \leq x \leq 9$

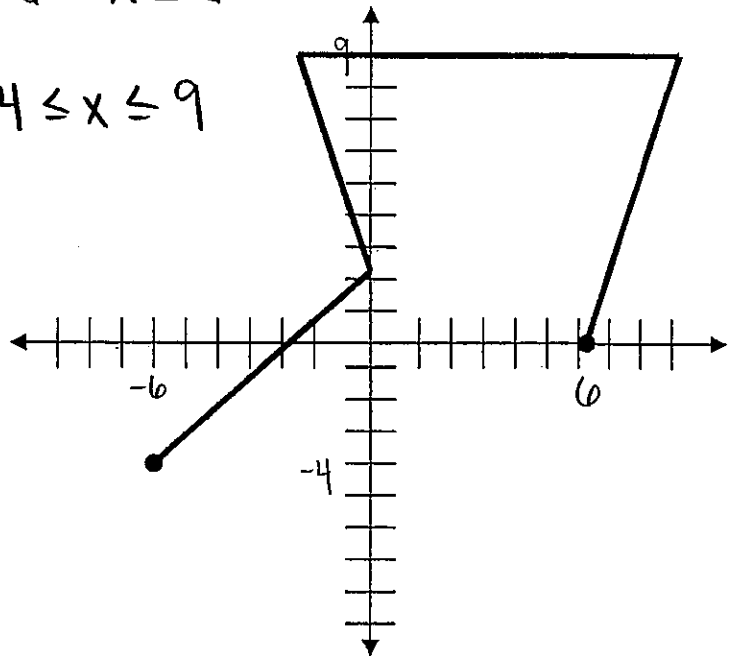
Y'S Range: 0 to $4 \rightarrow 0 \leq y \leq 4$



22. Give the domain and range of the function shown below.

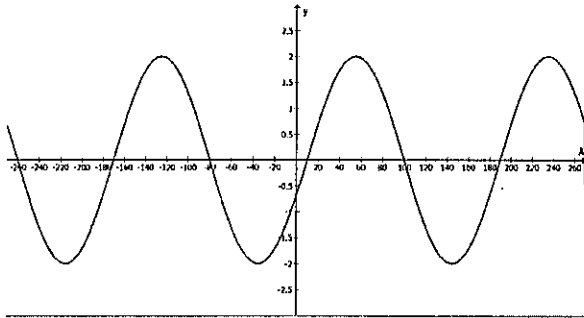
X'S Domain: -6 to $6 \rightarrow -6 \leq x \leq 6$

Y'S Range: -4 to $9 \rightarrow -4 \leq y \leq 9$

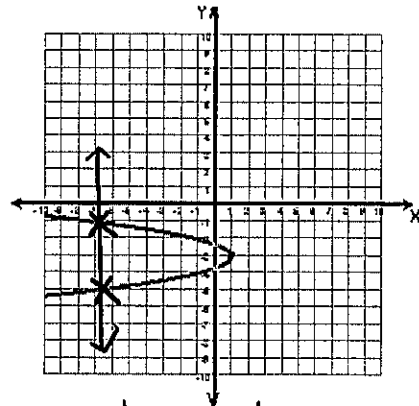


In 23-28, tell whether each graph is a function. Explain/show why or why not.

23. Yes, passes VLT.

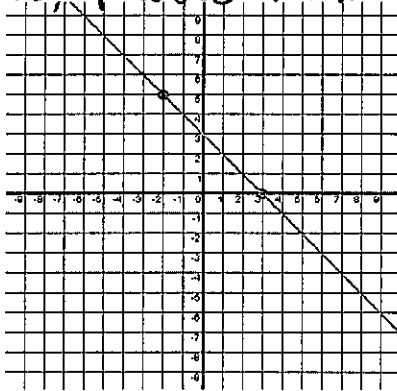


24.

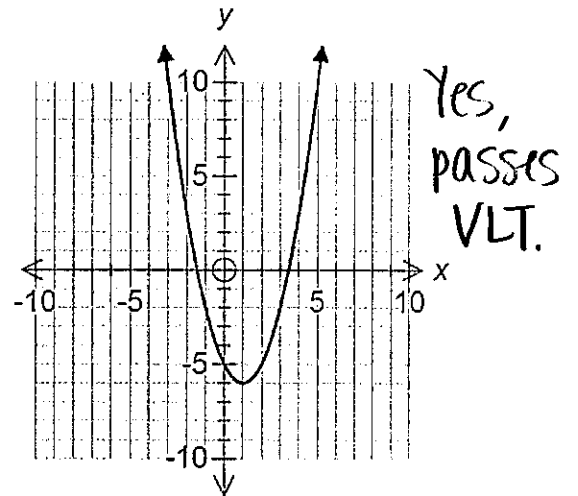


No, doesn't pass VLT.

25. Yes, passes VLT.

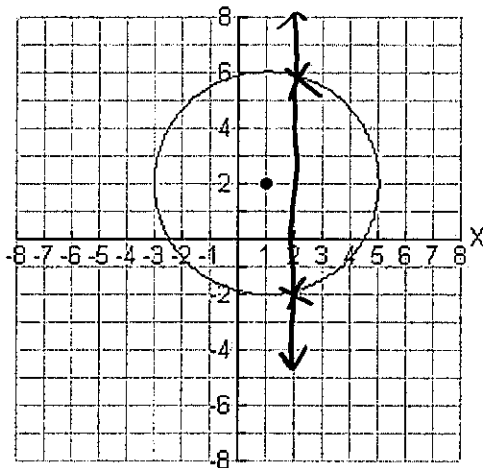


26.



Yes, passes VLT.

27. No, doesn't pass VLT.



28. Yes, passes VLT.

