

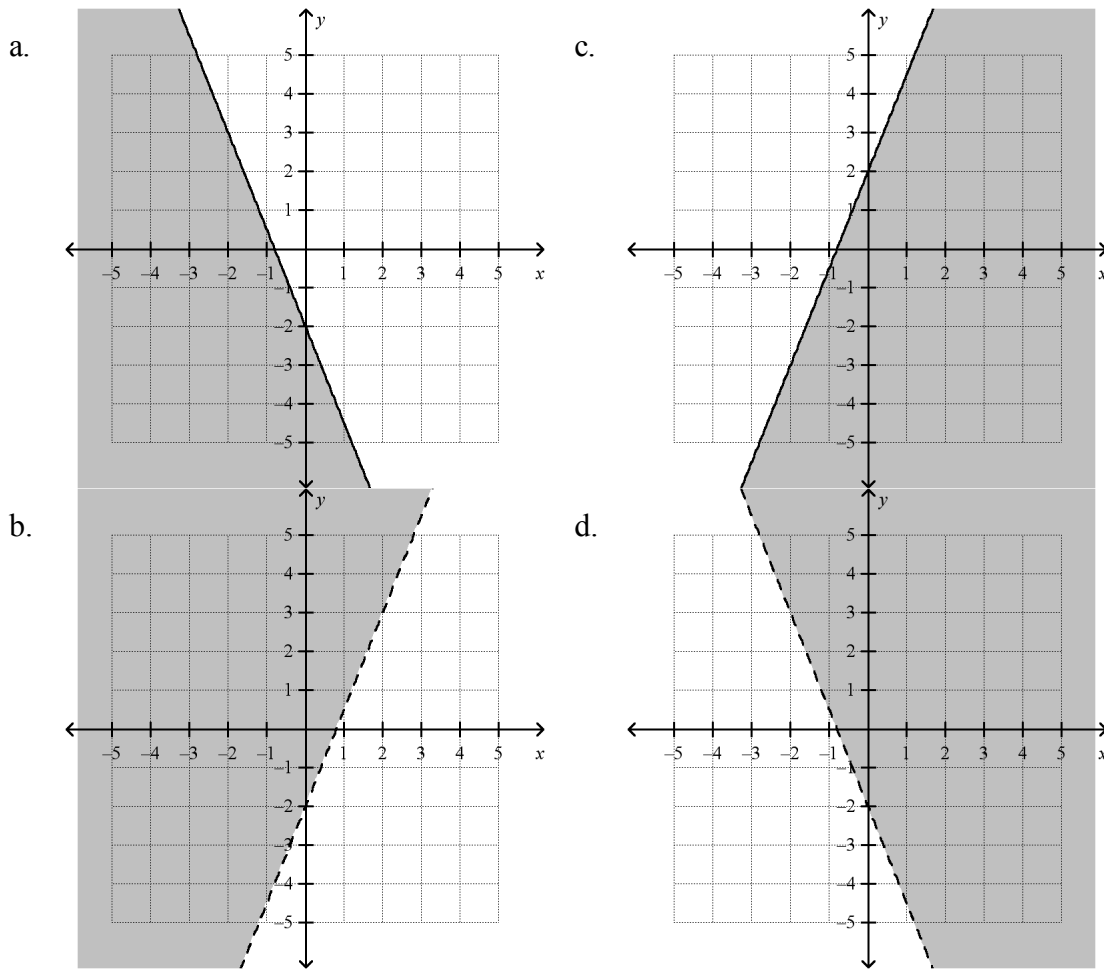
**North Carolina Math 1 Unit 1 Assessment:
Introduction to Functions and Equations****Multiple Choice**

Identify the choice that best completes the statement or answers the question.

- _____ 1. How many terms are in the simplified expression $24x^3 + 25x - 6x - 16x + 13$?
- | | |
|------|------|
| a. 3 | c. 2 |
| b. 4 | d. 5 |
- _____ 2. A family's cell phone plan costs \$50 per month for 900 minutes and 40 cents per minute over the limit. This month, the family paid \$95.20. By how much time did they exceed their plan?
- | | |
|----------------|---------------|
| a. 113 minutes | c. 18 minutes |
| b. 363 minutes | d. 58 minutes |
- _____ 3. You are updating your garage and the only thing left to paint is your garage door. You're only going to paint the side that faces the street. The garage door is 9 feet 8 inches tall and 120 inches wide. You need to know the surface area of the side of the garage door to determine how much paint to buy. The hardware store sells paint by how much covers a square foot. What is the surface area you should report to the hardware store? (*Hint*: 1 square foot = 144 square inches)
- | | |
|-------------------------|-------------------------|
| a. about 97 square feet | c. 96.7 square feet |
| b. 96.67 square feet | d. about 96 square feet |
- _____ 4. You are participating in a fund-raiser in which you run for donations. People can donate money based on a flat fee or based on the number of miles you run. So far, you have two donors. Your grandma has agreed to donate \$15 and your mom has agreed to donate \$1.70 per mile. If together they donated \$20.10, what equation represents this situation?
- | |
|---------------------------|
| a. $(15 + 1.70)x = 20.10$ |
| b. $1.70x + 15 = 20.10$ |
| c. $20.10x = 15 + 1.70$ |
| d. $15x + 1.70 = 20.10$ |
- _____ 5. You have no more than \$65 to spend. You want a drink that costs \$2.25 including tax, and you want to buy a pair of shoes, which will have 7% sales tax. What is the inequality that represents the amount of money you have to spend?
- | | |
|-------------------------------|-------------------------------|
| a. $x + 0.07x + 2.25 > 65$ | c. $x + 0.07x + 2.25 < 65$ |
| b. $x + 0.07x + 2.25 \leq 65$ | d. $x + 0.07x + 2.25 \geq 65$ |

- _____ 6. What are the term(s), coefficient, and constant described by the phrase, “the cost of 6 tickets to the football game, t , and a service charge of \$10”?
- a. term: $6t$, coefficient: 6, constant: 10
 - b. terms: $6t$ and 10, coefficient: 6, constant: 10
 - c. terms: $6t$ and 16, coefficient: 16, constant: 6
 - d. term: $6t$, coefficient: 16, constant: none
- _____ 7. What is the solution to the equation $-8x + 3(5x - 1) + 15 = -5x + 6$?
- a. $x = -0.7$
 - b. $x = -0.5$
 - c. There are no solutions to this equation.
 - d. $x = -3$
- _____ 8. What is the solution to the inequality $\frac{5x}{8} + 5 < x - 7$?
- a. $x < 32$
 - b. $x \leq 32$
 - c. $x \geq 32$
 - d. $x > 32$
- _____ 9. The formula for calculating speed traveled is $d = st$, for which s represents the speed traveled and t represents the time traveled. Solve this formula for s .
- a. $s = \frac{t}{d}$
 - b. $s = d - t$
 - c. $s = t - d$
 - d. $s = \frac{d}{t}$

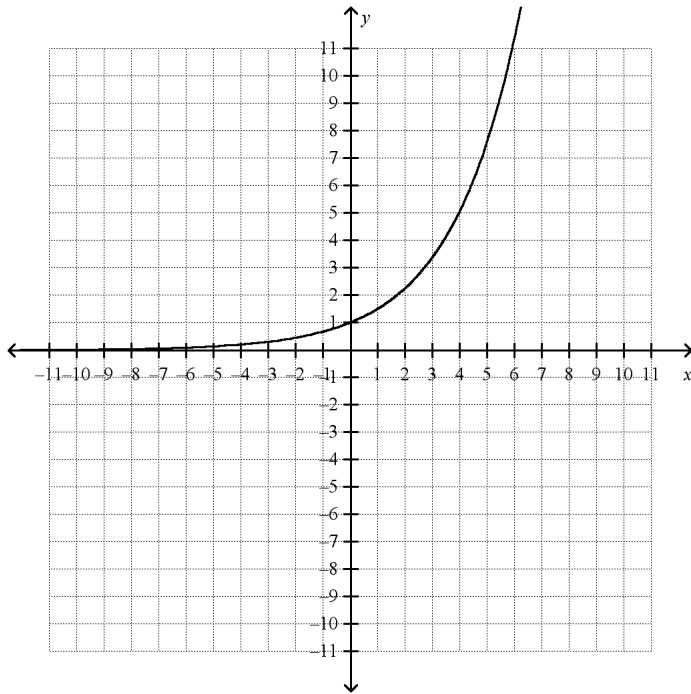
_____ 10. Which graph represents the solution to the inequality $5x + 2y > -4$?



_____ 11. If $f(x) = -x + 6$ and the domain of f is $\{3, 7, 11\}$, what is the range of $f(x)$?

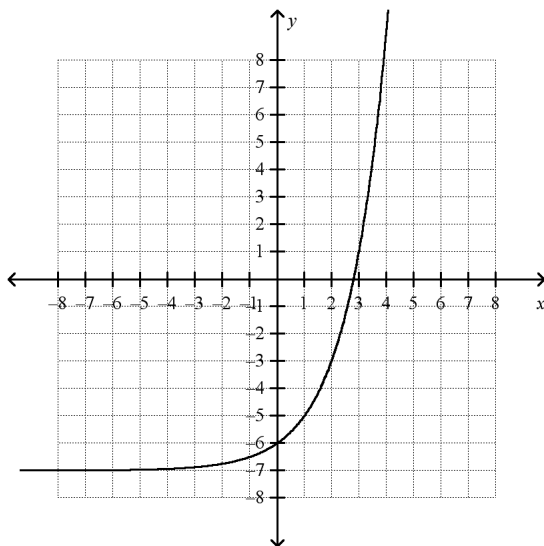
- a. $\{-11, -7, -3\}$
- b. $\{-9, -13, -17\}$
- c. $\{3, -1, -5\}$
- d. $\{3, 7, 11\}$

_____ 12. From the graph below, what is the domain and range of the function $f(x) = \left(\frac{3}{2}\right)^x$?



- | | |
|-------------------------------|---------------------------|
| a. Domain: {all real numbers} | c. Domain: {y>0} |
| Range: {y>0} | Range: {all real numbers} |
| b. Domain: {all real numbers} | d. Domain: {y<0} |
| Range: {y<0} | Range: {all real numbers} |

_____ 13. Given the graph of $f(x)$ below, what is $f(2)$?

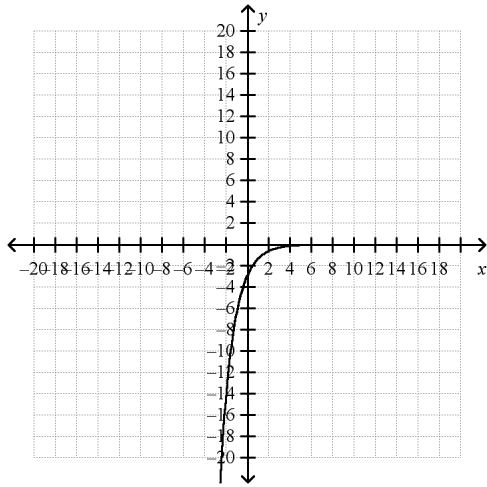


- | | |
|----------------|----------------|
| a. $f(2) = 2$ | c. $f(2) = -5$ |
| b. $f(2) = -3$ | d. $f(2) = 0$ |

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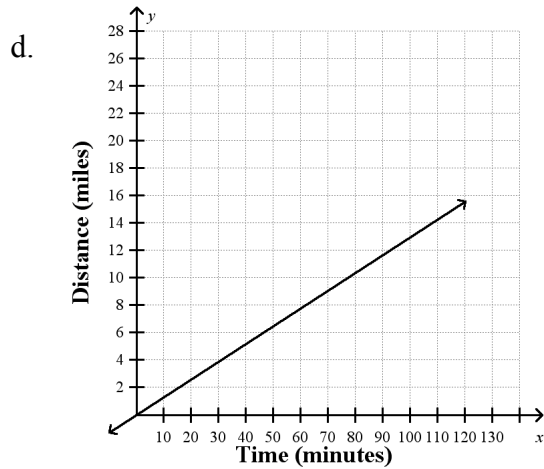
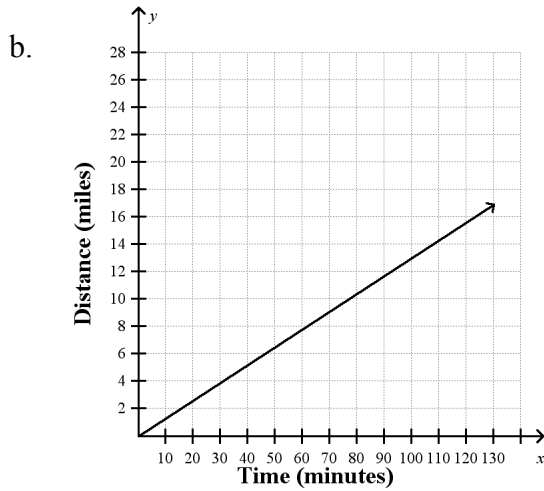
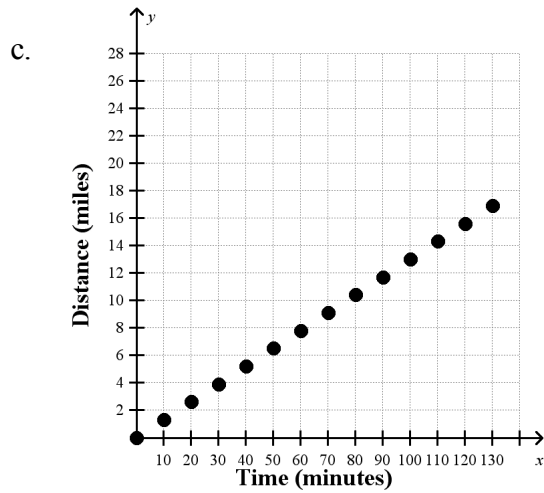
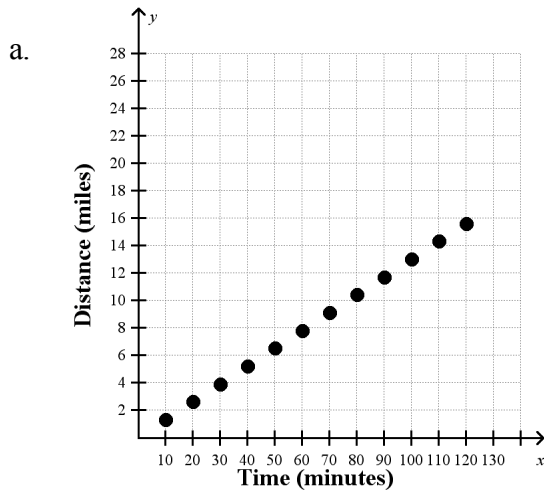
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_____ 14. The graph below can be described as:



- a. a positive function that is decreasing
- b. a positive function that is increasing
- c. a negative function that is increasing
- d. a negative function that is decreasing

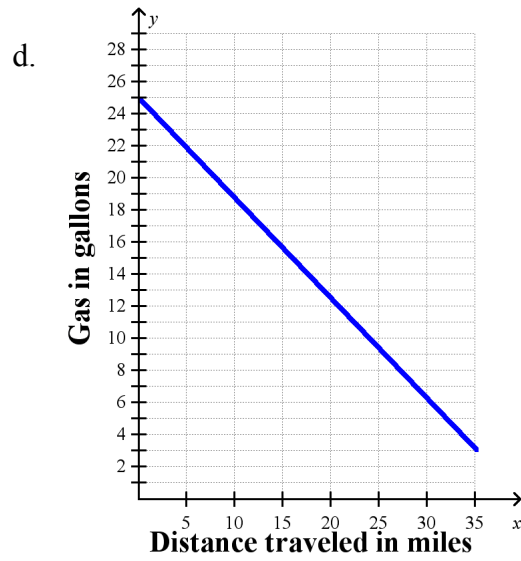
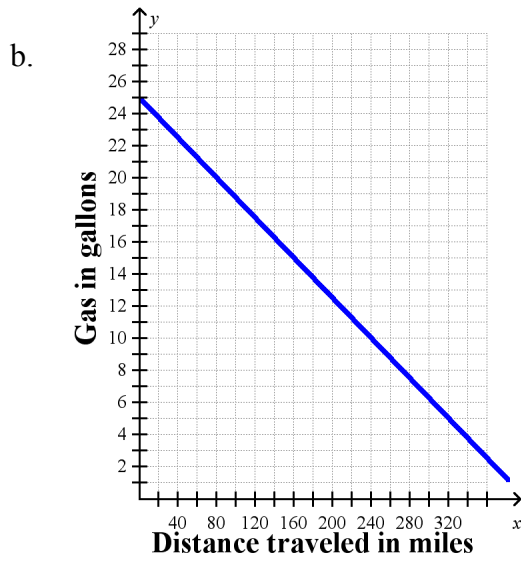
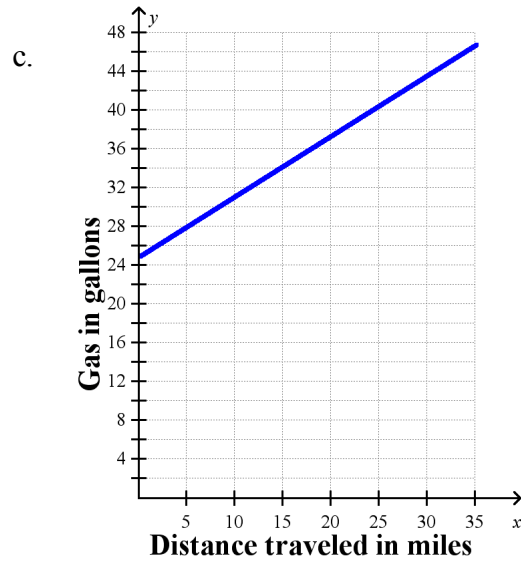
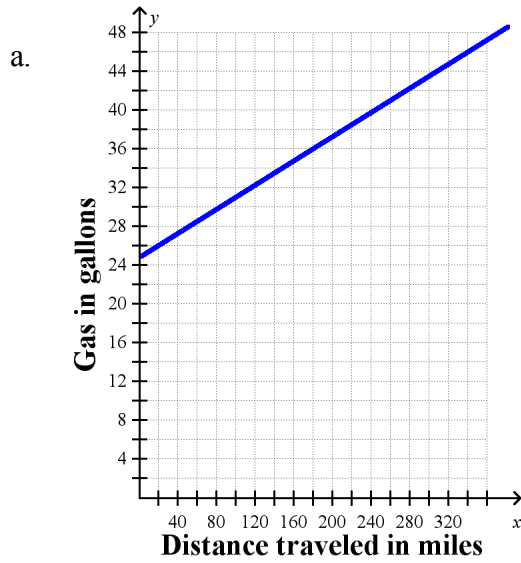
15. Which of the following graphs best represents the number of miles ran during a period of time?



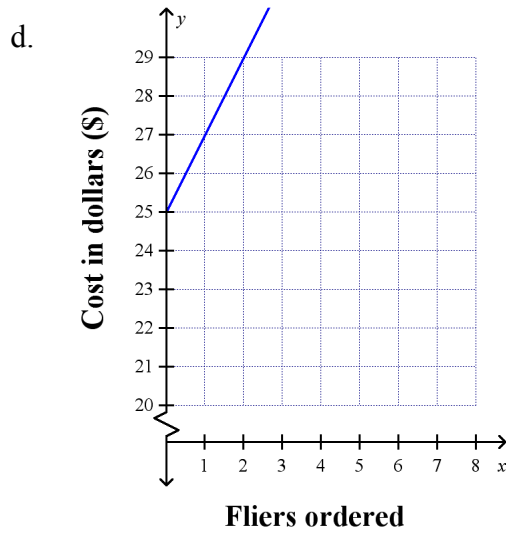
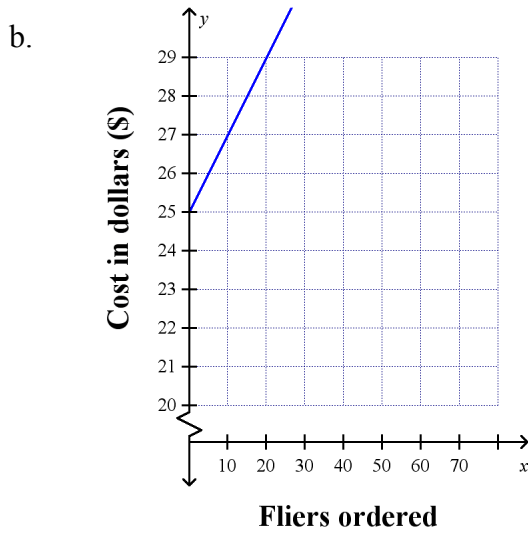
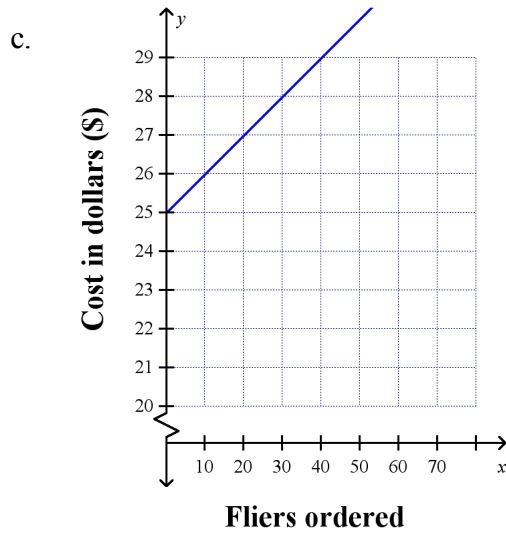
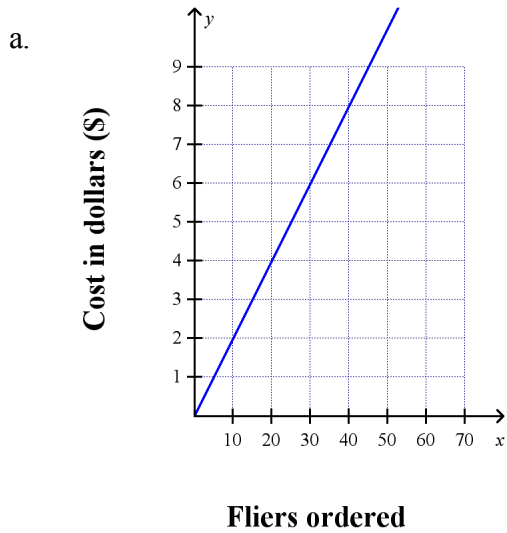
16. The recursive formula for an arithmetic sequence is given as $a_n = a_{n-1} - 14$, with $a_1 = 1$. What is the seventh term of the sequence?

- a. -83
- b. -7
- c. -97
- d. -69

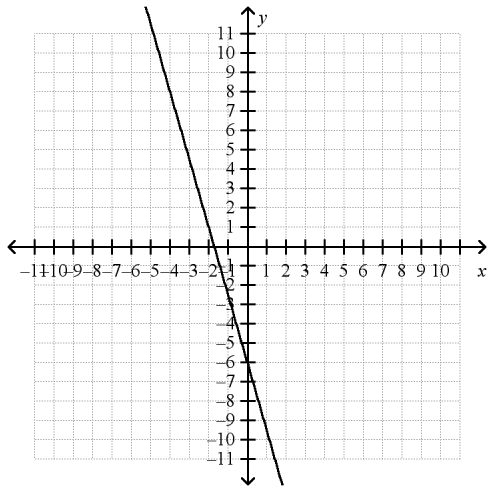
17. A truck holds 25 gallons of gas and the tank averages 0.0625 gallons per mile. Which graph models the amount of gas left in the tank?



18. A advertising service charges \$25.00 a year as well as \$0.20 for each flier ordered. Which graph models the total cost of ordering fliers?

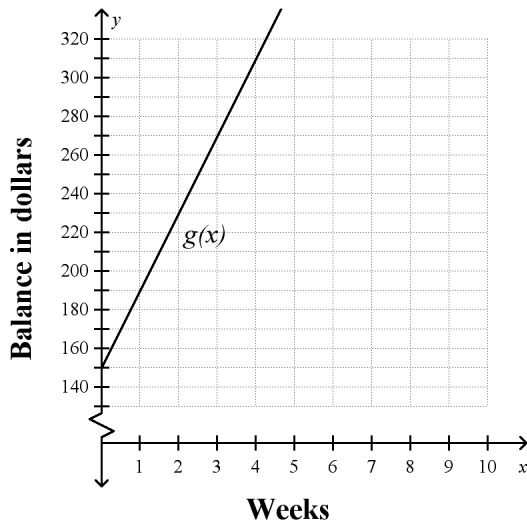


19. What is the y -intercept of the graph below?



- a. $(0, -6)$
- b. $(-6, 0)$
- c. $(0, 6)$
- d. $(6, 0)$

20. The function $f(x)$ represents the balance of a checking account with an initial deposit of \$110 and weekly deposits of \$45. A different checking account follows the function $g(x)$. The graph of function $g(x)$ is below.



Which of the following statements is true about the functions $f(x)$ and $g(x)$?

- a. The y -intercept of the function $f(x)$ is equal to the y -intercept of the function $g(x)$.
- b. The y -intercept of the function $f(x)$ is greater than the y -intercept of the function $g(x)$.
- c. The y -intercepts cannot be determined.
- d. The y -intercept of the function $f(x)$ is less than the y -intercept of the function $g(x)$.