

Practice Test:

1. Solve for  $x$ .

$$6x - (2x + 3) = 17$$

- A. 1.75                      B. 3.5  
C. 4                            D. 5

2. Solve for  $x$ .

$$-\frac{x}{2} + 7 = -7$$

- A. 7                            B. -28  
C. -7                          D. 28

3. Solve for  $x$ .

$$8x - 3(x - 4) = 5(x + 12)$$

- A. 2.4                        B. 8  
C. No solution            D. All Real Numbers

4. Solve for  $x$ .

$$\frac{2}{3}(12x + 30) + 5x = 228$$

- A. 15                          B. 5  
C. 16                          D. 24

5. Solve for  $x$ .

$$3x - 5 - 7x + 19 = -4x + 4 + 3x$$

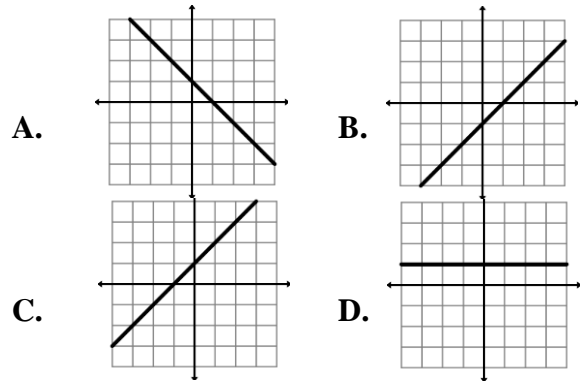
- A. 3                            B. 2  
C.  $\frac{10}{3}$                         D.  $-\frac{10}{3}$

6. Solve the following equation for  $p$ .

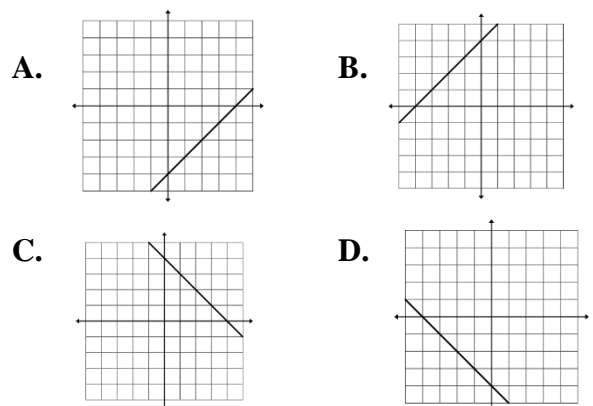
$$r = s - p + t$$

- A.  $p = -r + s + t$         B.  $p = r - s - t$   
C.  $p = r + s + t$         D.  $p = -r + s - t$

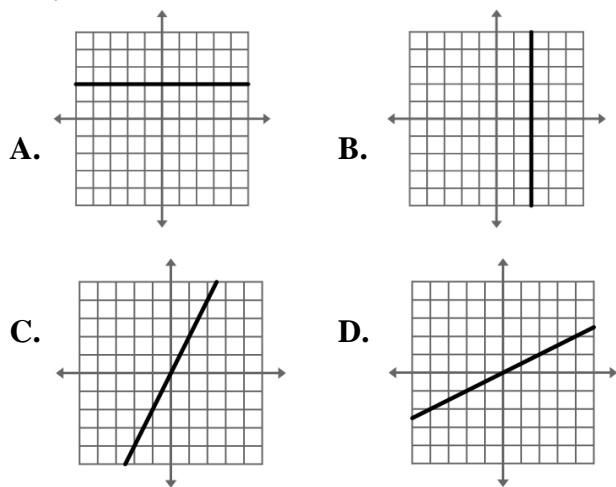
7.  $x + y = 1$



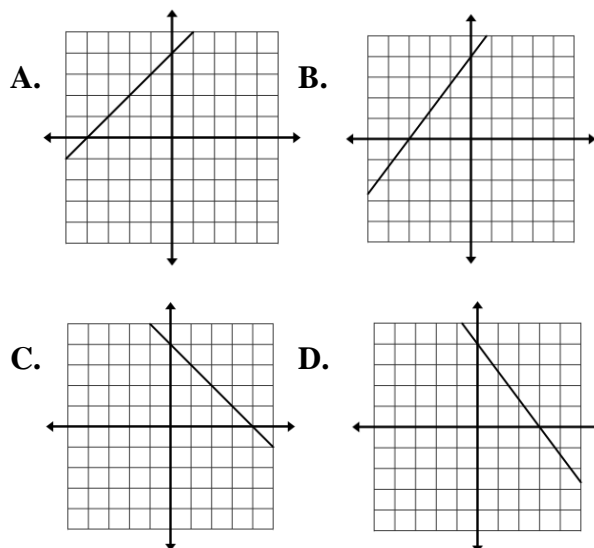
8.  $y - 4 = x$



9.  $y = 2x$



10.  $4x + 3y = 12$

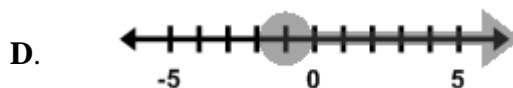
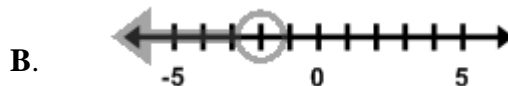
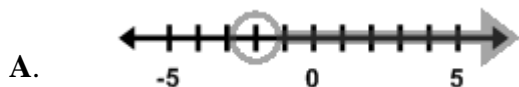


11. Mark buys a house that has a patio partially completed in the backyard. There are 22 bricks in the patio before Mark starts working on it from the previous owner. After 2 days of laying bricks there are 182 bricks in the patio. Supposing that Mark lays the same amount of bricks each day, write an equation that represents how many bricks ( $y$ ) are in the patio on a given day ( $x$ ).

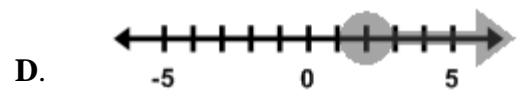
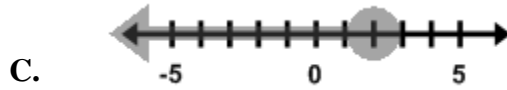
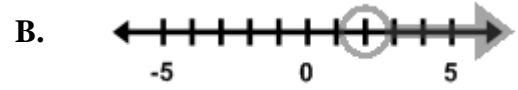
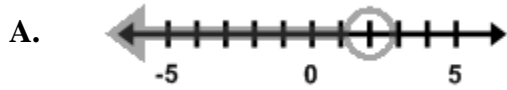
12. Susana is given some money for her birthday and decides to spend the same amount each week. She decides to spend \$25 per week. After 6 weeks, she still has \$100 left. Write an equation that represents how much money she has left ( $y$ ) after a specific amount of weeks ( $x$ ).

13. Jocelyn is on a road trip with a friend. They start driving with 15 gallons of gas in the car. Each hour that they drive they lose 3 gallons of gas. Write an equation that represents how much gas she has in her car ( $y$ ) given a specific time ( $x$ ).

14. Solve and graph the inequality.  $2x - 5 < -9$



15. Solve and graph the inequality.  $-4x > -8$



16. Solve the inequality.  $4(x+1) \leq 4x+28$

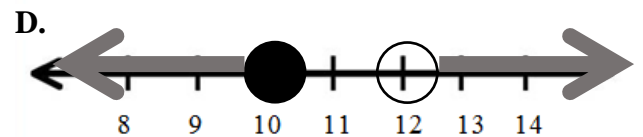
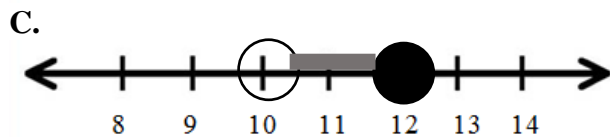
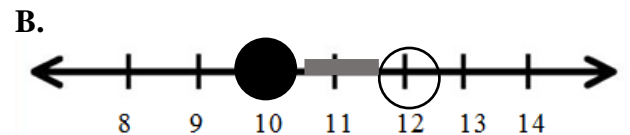
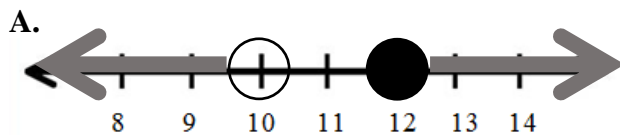
- A.  $x \leq 1$
- B.  $x \geq 28$
- C. All Real Numbers
- D. No Solution

17. Solve the inequality.  $5x+4-2x+6 > 3x+10$

- A.  $x > 10$
- B.  $x > 1.7$
- C. All Real Numbers
- D. No Solution

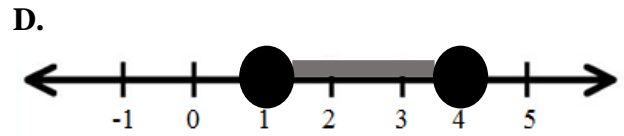
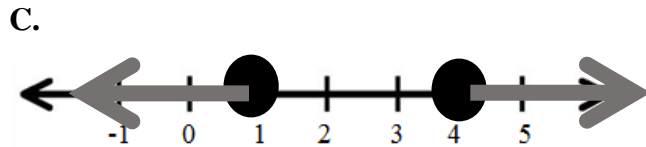
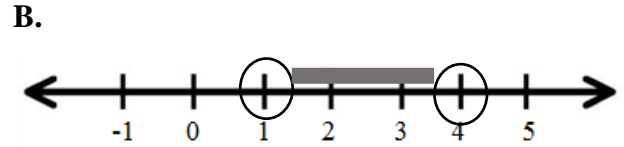
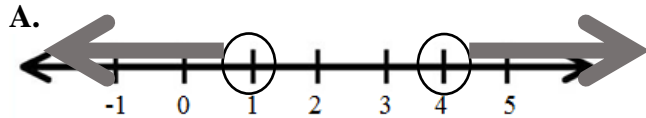
18. Solve and graph the following inequality:

$$16 \leq 2x - 4 < 20$$



19. Solve and graph the following inequality:

$$2 + x < 3 \text{ or } x + 8 > 12$$



20. Solve  $-3x < 27$  or  $16x < -64$

- A. All Real Numbers      B.  $x < -4$   
 C.  $-9 < x < -4$       D.  $x < -9$  or  $x > -4$

21. Solve  $-3x > 27$  or  $16x < -64$

- A. All Real Numbers      B.  $x < -4$   
 C.  $-9 < x < -4$       D.  $x < -9$  or  $x > -4$

22. Rachel is trying to raise money by selling Lakeridge t-shirts and sweatshirts. She is charging \$5 per shirt and \$15 per sweatshirt. She needs to raise at least \$500. Fill in the blank below with the appropriate inequality symbol to represent this situation.

$$5x + 15y \text{ \_\_\_ } 500$$

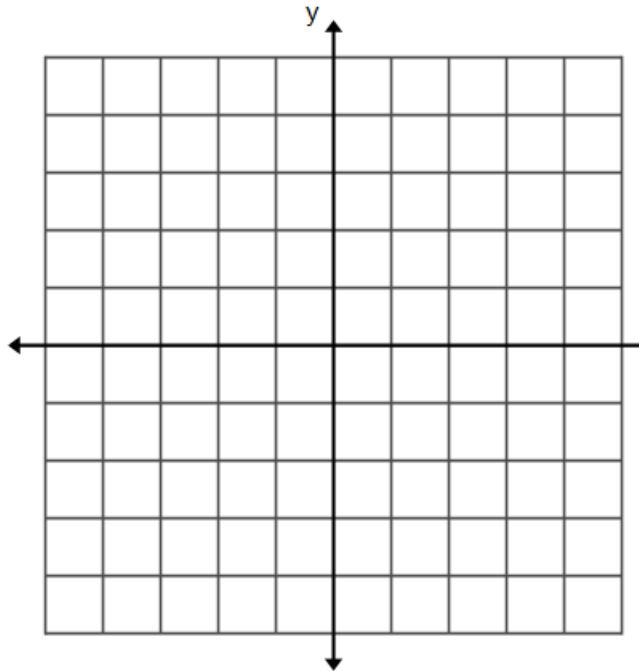
- A. <                      B. >  
 C. ≤                      D. ≥

23. Laura goes to an arcade that cost \$5 to enter and each game is \$2 to play. She only has \$20 to spend. Fill in the blank below with the appropriate inequality symbol to represent this situation.

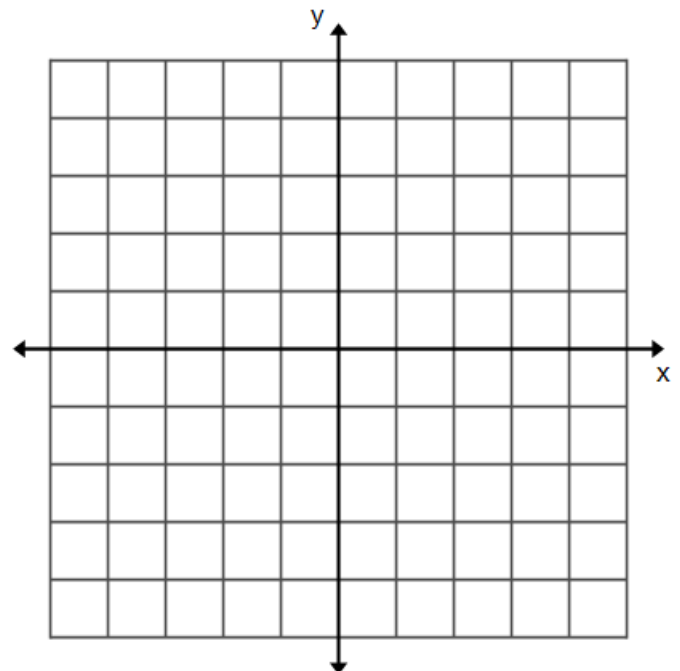
$$2x + 5 \text{ \_\_\_ } 20$$

- A. <                      B. >  
 C. ≤                      D. ≥

24. Graph  $y < -3x$



25. Graph  $y \leq \frac{1}{3}x + 1$



26. A certain type of tree triples its weight every 5 years for the first twenty years. If it weighs 10 pounds when it is planted, how much would it weigh at the end of the first 20 years?

27. Your grass is 3 inches long right now. It grows about 1.5 inches per day. Write an equation to correctly calculate how long it will be in  $d$  days.

28. Bacteria can multiply at an alarming rate by doubling every day. The population starts with 6 bacteria.

a) Write an equation to represent the growth of the bacteria.

b) How many bacteria will there be after 8 days?

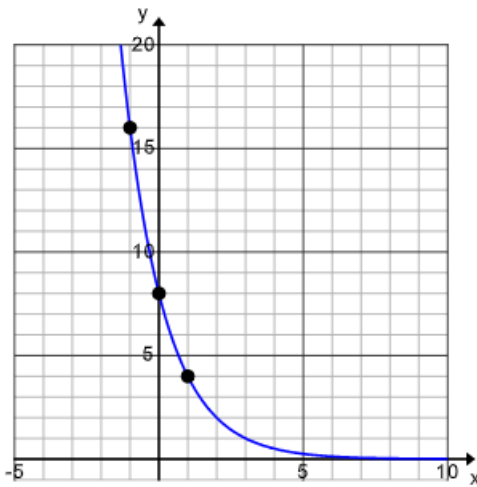
29. Which equation represents the pattern in the table below?

x	y
1	70
2	58
3	46
4	34
5	22

A.  $y = 82x - 12$       B.  $y = -12x + 82$

C.  $y = -12^x + 82$       D.  $y = 82 \cdot 12x$

30. Write an equation for the graph below:



31. When Terrell fills the gas tank of his car, he has 15 gallons of gas. After traveling 2, 3, and 4 miles, he has 14.9, 14.85, and 14.8 gallons of gas left, respectively. Which equation represents the remaining gallons of gas after traveling  $x$  miles?

- A.  $y = 15 - 0.5x$       B.  $y = 15x$
- C.  $y = 15 - 0.05x$       D.  $y = 15 + 0.05x$

32. Write an equation that represents how many stars are in each round.



33. Which equation represents the fastest exponential growth?

- A.  $y = 2.62(1.22)^x$       B.  $y = 1.22(2.62)^x$
- C.  $y = 0.86(0.46)^x$       D.  $y = 0.46(0.86)^x$

34. Given the equation  $y = 26(1.05)^x$  which of the following is true:

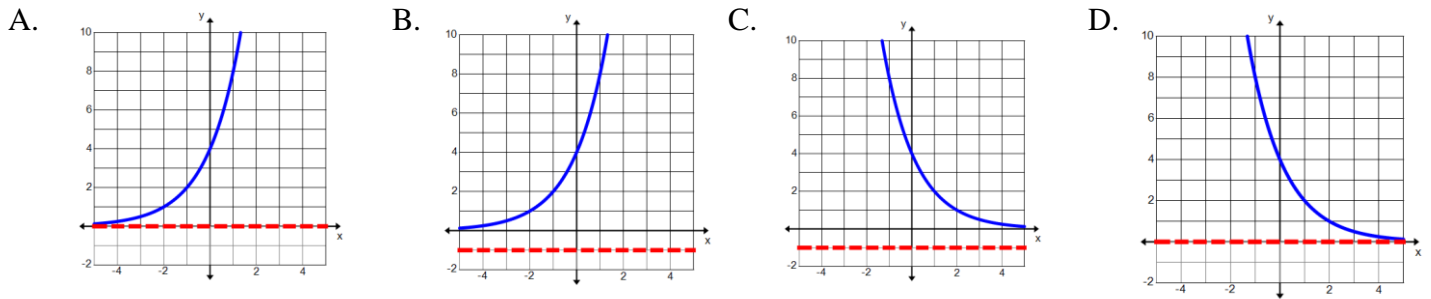
- A. It is decreasing at a rate of 5%.
- B. It is increasing at a rate of 26%.
- C. It is increasing at a rate of 5%.
- D. It is increasing at a rate of 1.05%.
- E. It is decreasing at a rate of 1.05%.

35. You buy a new home and predict it will increase in value 4% each year. You pay \$200,000 for the home. How much will it be worth in 30 years?
- A. \$648,680      B. \$58,771  
C. \$4,840,286,471      D. \$24,000,000

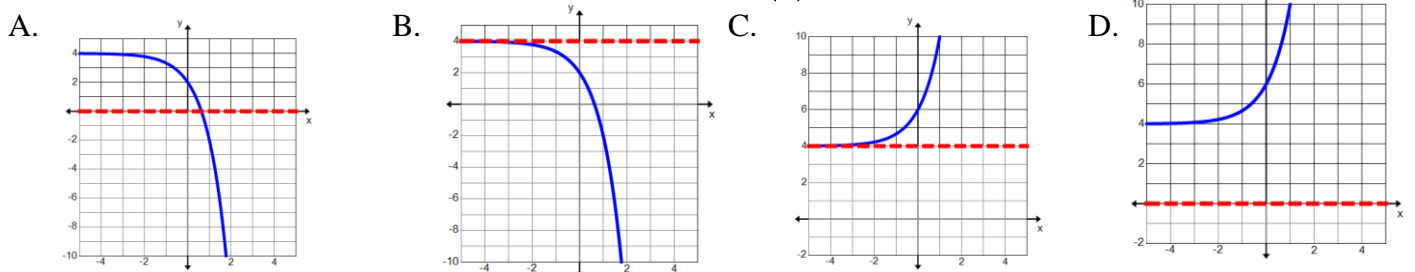
36. The value of a new car purchased for \$20,000 decreases 1.1% per year. Write an exponential decay model for the value of the car.
- A.  $y = 20,000(.989)^t$       B.  $y = 20,000(1.01)^t$   
C.  $y = 20,000(.89)^t$       D.  $y = 20,000(.01)^t$

37. You deposit \$1,000 in an account that pays 2.5% interest compounded semi-annually. Write an expression that will calculate the value in the savings account in 5 years.
- A.  $\$1,000(1 + .025)^5$       B.  $\$1,000\left(1 + \frac{.025}{2}\right)^5$   
C.  $\$1,000(1.025)^{10}$       D.  $\$1,000\left(1 + \frac{.025}{2}\right)^{10}$

38. Which of the following is the correct graph of:  $y = 4\left(\frac{1}{2}\right)^x$  ?

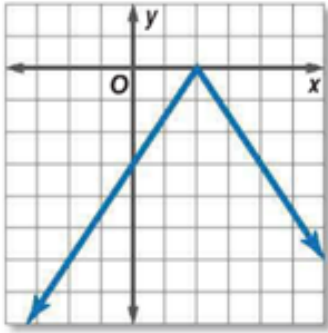


39. Which of the following is the correct graph of:  $y = -2(3)^x + 4$  ?

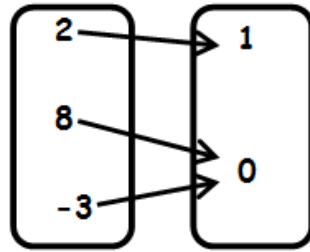


40. Determine if each of the following is a function:

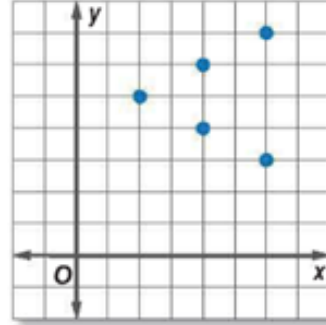
A.



B.



C.

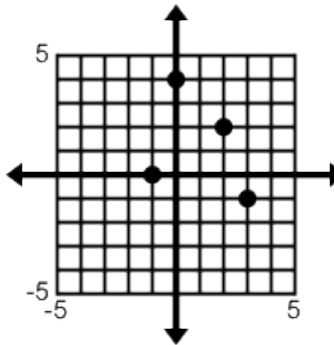


D.

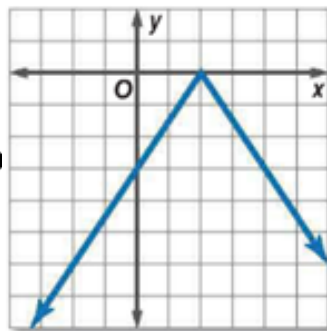
$x$	$f(x)$
-2	-5
0	-4
1	-5
2	3

41. Write the domain and range of each of the following:

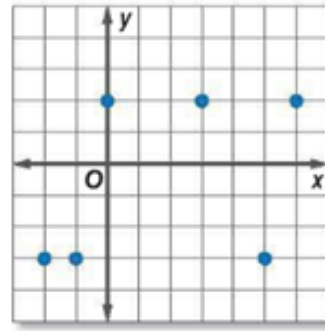
A.



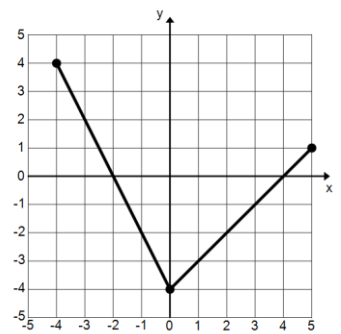
B.



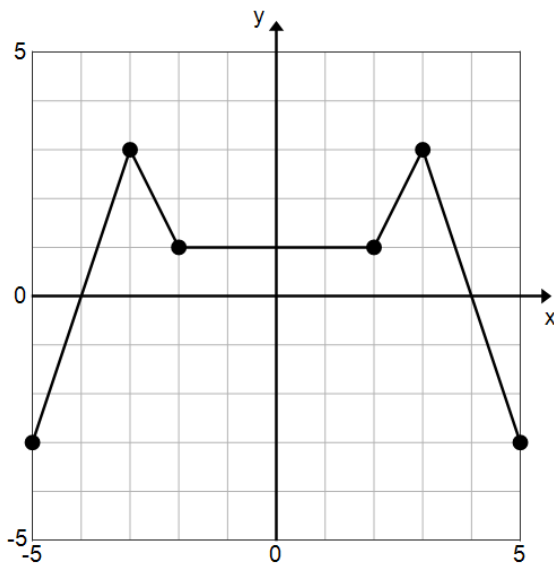
C.



D.



#42-44: Use the following graph to answer each question.



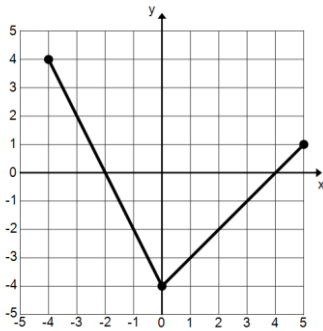
42. What is the correct domain and range?

43. Where is the function increasing?

44. Where is the function positive?



45. Using the graph below, what is  $f(2)$ ?



- A. -4
- B. -3
- C. -2
- D. 4

46. If  $f(x) = x^2 + 5$ , what is  $f(-4)$ ?

- A. -16
- B. -11
- C. 16
- D. 21

47. Which shows the most simplified

version of  $\left(\frac{f}{g}\right)(x)$  for

$f(x) = 9x + 3$  and  $g(x) = 3x + 27$ ?

- A.  $\frac{9x+3}{3x+27}$
- B.  $\frac{3x+1}{x+9}$
- C.  $\frac{4}{10}$
- D.  $\frac{2x}{8}$

48. Which correctly shows the most simplified version of  $(g - f)(x)$

for

$f(x) = 2x + 5$ , and  $g(x) = 6x + 4$ ?

- A.  $-4x + 1$
- B.  $-4x + 9$
- C.  $4x + 9$
- D.  $4x - 1$

49. Which correctly shows the most simplified version of  $(h \cdot j)(x)$

for

$h(x) = -2x$  and  $j(x) = 5x - 3$ ?

- A.  $10x^2 - 6x$
- B.  $-10x + 6$
- C.  $-10x^2 + 6x$
- D.  $-4x$

50. Which correctly shows the most simplified version of

$3[(g + f)(x)] + 4$  for

$f(x) = 2x - 5$ , and  $g(x) = 6x + 4$ ?

- A.  $24x + 1$
- B.  $24x - 3$
- C.  $24x + 9$
- D.  $12x + 31$