

## Spring Benchmark #2 Study Guide

**Simplify each expression.**

1)  $-5(1 - 7x) - 3(-3 - 7x)$

- A) 10                      B)  $-11 - 70x$   
 C)  $4 + 66x$             D)  $4 + 56x$

2)  $-9(x + 7) + 10(8 + x)$

- A)  $-41 + 9x$             B)  $-47 + 9x$   
 C)  $49x + 90$             D)  $x + 17$

3)  $9(m + 3) - 6(m + 3)$

- A)  $17 + 31m$             B)  $3m + 13$   
 C)  $3m + 9$               D)  $26 + 31m$

4)  $10(6n + 3) + 4(-4 - 7n)$

- A)  $32n + 14$             B)  $-7$   
 C)  $30 - 20n$             D)  $30 - 17n$

**Solve each equation. (MFAEI1.b)**

5)  $-2k + 10 = -18$

- A)  $\{-18\}$                 B)  $\{-17\}$   
 C)  $\{14\}$                  D)  $\{7\}$

6)  $3 = 3 + 7b + 3b$

- A)  $\{0\}$                     B)  $\{10\}$   
 C)  $\{5\}$                     D)  $\{-14\}$

7)  $x - 3 - x = -2$

- A)  $\{15\}$                     B)  $\{-14\}$   
 C) No solution.          D)  $\{6\}$

8)  $-3n = -6n + 3n$

- A)  $\{4\}$   
 B)  $\{-2\}$   
 C)  $\{\text{All real numbers.}\}$   
 D)  $\{6\}$

9)  $4(n + 6) = 20 + 6n$

- A)  $\{15\}$                     B)  $\{5\}$   
 C)  $\{-14\}$                 D)  $\{2\}$

**Solve each equation for the indicated variable.**

10)  $z = y + xm$ , for  $x$

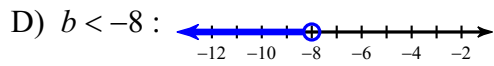
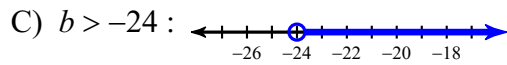
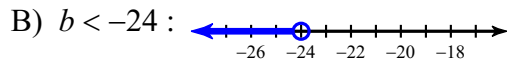
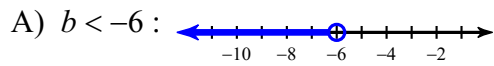
- A)  $x = \frac{z - y}{m}$                 B)  $x = \frac{m}{z - y}$   
 C)  $x = \frac{z + y}{m}$                 D)  $x = mz + my$

11)  $u = y - xk$ , for  $x$

- A)  $x = -u + y - k$   
 B)  $x = \frac{u + y}{k}$   
 C)  $x = \frac{-u + y}{k}$   
 D)  $x = ku - ky$

**Solve each inequality and graph its solution.**

12)  $-7(7b + 8) - 4b > 368$



13) Eli needs to save enough money to buy a Nintendo Switch which cost \$400.

He has \$80 and he earns \$20 a month.

If  $x$  is the number of months, write an equation that determines the number of months it will take Eli to save enough money for the Nintendo Switch.

14) When I solved an inequality my answer was  $x \leq -1$ , is  $x = -10$  a solution to the inequality?

- A) No, because -10 is less than -1
- B) Yes, because -10 is less than -1
- C) No, because -10 is greater than -1
- D) Yes, because -1 is less than -10

**(MFAEI1) Use elimination to find the x-coordinate of the solution to each system.**

15)  $10x + 9y = -15$   
 $-10x - 7y = 25$

- A) -6
- B) -3
- C) Infinite number of solutions
- D) -2

**Use substitution to find the x-coordinate of the solution to each system.**

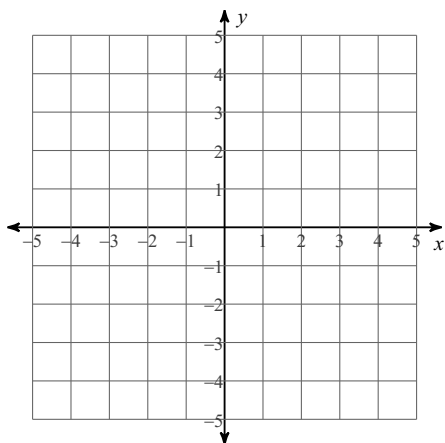
16)  $y = -6x - 20$   
 $y = -3x - 11$

- A) 3
- B) -2
- C) -3
- D) Infinite number of solutions

**Solve each system by graphing.**

17)  $y = \frac{5}{4}x + 4$

$$y = -\frac{3}{4}x - 4$$



- A)  $(-4, -5)$       B)  $(-4, 1)$   
C)  $(-4, 5)$       D)  $(-4, -1)$

**Solve each system by elimination.**

18) Determine if the system of equations has one solution, no solution or infinite number of solutions. Explain your answer.

$$-3x - 7y = 9$$

$$3x + 7y = -6$$

- A) No Solution, final result is  $0=0$  and it is a true statement  
B) Infinite number of solutions, final result is  $0=0$  and it is a true statement  
C) One solution, final result is  $x=0$   
D) No solution, final result is  $0=3$  and it is a false statement.

19) Determine if the system of equations has one solution, no solution or infinite number of solutions. Explain your answer.

$$-5x + 2y = -20$$

$$-9x - 2y = 20$$

- A) One solution, final result is  $x=0$ .  
B) No solution, final result is  $0=0$  and it is a true statement.  
C) Infinite number of solutions, final result is  $0=0$  and it is a true statement  
D) No solution, final result is  $-14=3$ , and it is a false statement.

20) Determine if the system of equations has one solution, no solution or infinite number of solutions. Explain your answer.

$$-10x - 2y = -18$$

$$10x + 2y = 18$$

- A) One solution, final result is  $x=0$
- B) No solution, final result is  $0=3$  and it is a false statement.
- C) No solution, final result is  $0=0$  and it is a true statement.
- D) Infinite number of solutions, final result is  $0=0$  and it is a true statement.

**Solve each system by elimination.**

21) How will the graph of the following system of equations look like when you graph them?

$$-x + 2y = 2$$

$$x + 7y = 16$$

- A) One line on top of another line
- B) Two parallel lines
- C) Two lines that intersect at one point
- D) Lines that are perpendicular

**Use substitution to find the x-coordinate of the solution to each system.**

22)  $y = -2x + 9$   
 $2x + 3y = 19$

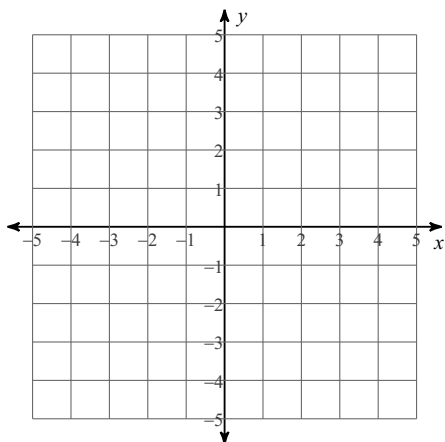
- A) 3
- B) 2
- C) -3
- D) -5

23)  $-7x - y = -8$   
 $y = -7x - 6$

- A) -8
- B) 8
- C) No solution
- D) Infinite number of solutions

Solve each system by graphing.

24)  $4x - y = 3$   
 $x + y = 2$

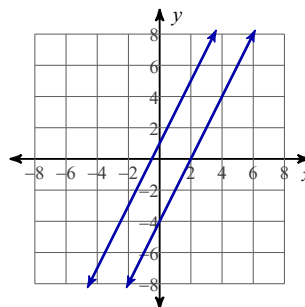


- A) (1, 5)      B) (4, -5)  
 C) (5, 1)      D) (1, 1)

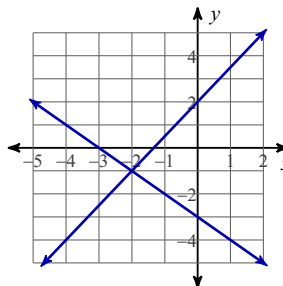
25) Determine the number of solutions for each system of equations:

Word Bank:  
 Infinite Number of Solutions  
 No Solution  
 One Solution

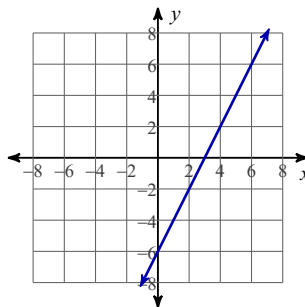
A)



B)

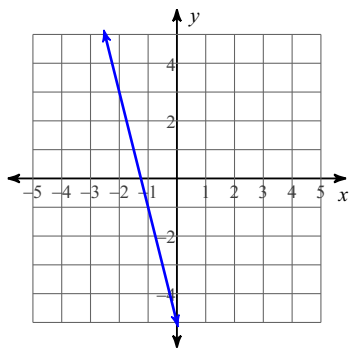


C)

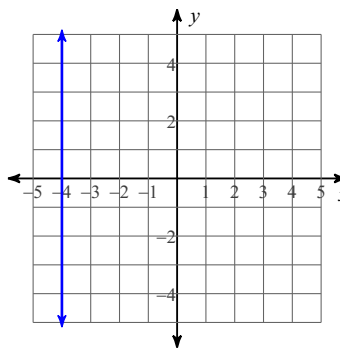


Write the slope-intercept form of the equation of each line.

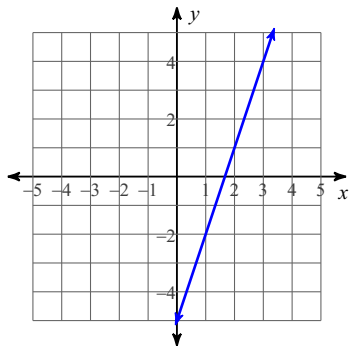
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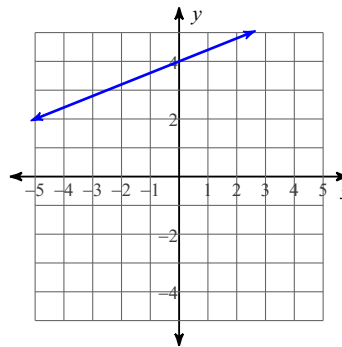
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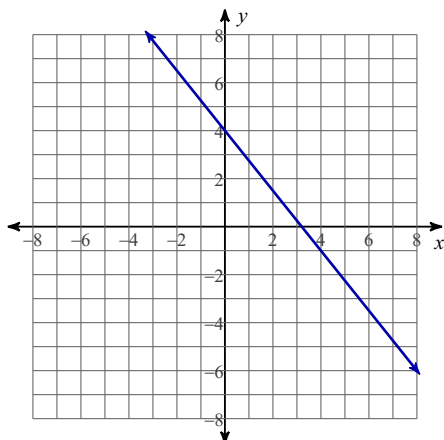
28)



29)



30) Determine if the statements are true or false. Correct false statements.



- A) The equation of the line is  $y = -\frac{4}{5}x + 3$
- B) The graph drops from left to right
- C) The x-intercept is 4
- D) The y-intercept is 3

**Write the slope-intercept form of the equation of the line through the given point with the given slope.**

31) through:  $(-1, -3)$ , slope = 8

- A)  $y = 8x + 5$
- B)  $y = -3x + 5$
- C)  $y = 4x + 5$
- D)  $y = 5x - 3$

32) through:  $(2, 2)$ , slope = undefined

- A)  $y = -2$
- B)  $y = 2x$
- C)  $x = -2$
- D)  $x = 2$

33) through:  $(5, -3)$ , slope =  $-\frac{4}{5}$

A)  $y = -x - \frac{4}{5}$

B)  $y = -\frac{4}{5}x + 1$

C)  $y = -\frac{4}{5}x - 1$

D)  $y = x - \frac{4}{5}$

34) through:  $(1, -4)$ , slope = 0

A)  $y = -4$       B)  $x = 1$

C)  $y = -\frac{1}{2}x$       D)  $y = -\frac{1}{2}$

**Write the slope-intercept form of the equation of each line.**

35)  $5x + 4y = -12$

A)  $y = x - 3$       B)  $y = -\frac{5}{4}x - 3$

C)  $y = -x - 3$       D)  $y = -3x + 1$

36)  $x - 3y = -15$

A)  $y = \frac{1}{3}x + 5$       B)  $y = -4x + 5$

C)  $y = 4x + 5$       D)  $y = -x + 5$

**Find the slope of the line through each pair of points.**

37)  $(-15, 17), (-15, -18)$

38)  $(-20, -2), (13, -20)$

39)  $(7, 5), (1, 5)$

40)  $(-9, -20), (-8, -12)$

41) Compare the slopes of the following lines.

Line 1:  $(4, -8), (6, -8)$

Line 2:  $(15, 6), (15, 8)$

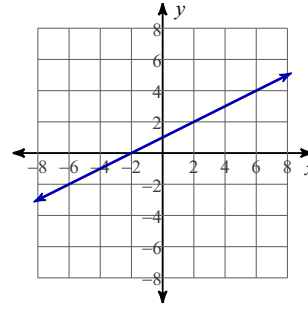
- A) The slope of line 1 is the same as the slope of line 2
- B) The slope of line 2 is greater than the slope in line 1
- C) The slope of line 1 is zero and the slope of line 2 is undefined
- D) The slope of line 1 is greater than the slope in line 2

42) Given the line  $y = \frac{1}{2}x - 4$  determine if the statements are true or false. Correct false statements.

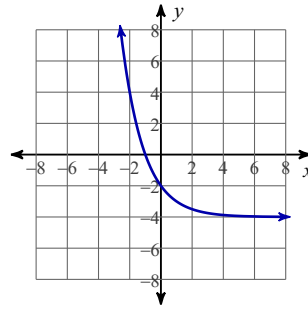
- A) The slope is  $\frac{1}{2}$
- B) The line drops from left to right
- C) The line has a negative slope
- D) The y-intercept is -4

43) Label each function as: Exponential Growth, Exponential Decay, Positive Linear, Negative Linear

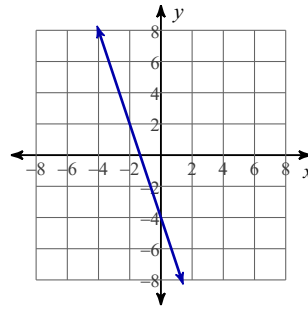
A)



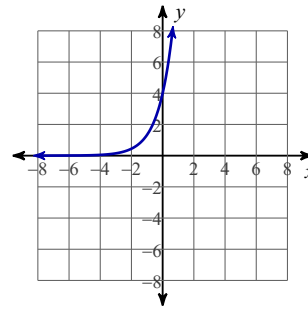
B)



C)



D)



44) (MCC9-12.F.LE.1c, DOK 2) Label each equation as exponential growth or exponential decay.

- A)  $y = 0.5 \cdot \left(\frac{5}{3}\right)^x$
- B)  $y = 0.03 \cdot 9^x$
- C)  $y = \left(\frac{1}{3}\right)^x$
- D)  $y = 5 \cdot 0.3^x$