

Study Guide for Fall 2018 Benchmark #3

(MGSE9-12.A.CED.2, DOK 2)

- 1) A line has a slope of 9 and contains the point (0, 18). Write the equation of the line. $y = 9x + 18$
- 2) Write the equation of a line that has a slope of 10 and goes through point (3, 5). $10x - 25$

(MGSE9-12.F.IF.2, DOK1)

- 3) Evaluate $y = -7x - 2$ when $x = 4$. $y = 30$

(MGSE9-12.F.IF.1, DOK1)

- 4) Circle the relations that are functions.

- 5) What is the domain and range of the relation (8, 6), (2, 4), (12, 0), (15, -3)?

- A) (2, 3), (2, 3), (2, 5)
 B) (-4, 4), (5, 8), (-4, 6)
 C) (0, 7), (1, 7), (6, 7)
 D) (2, 4), (4, 8), (6, 10)

D: { 2, 8, 12, 15 }
 R: { -3, 0, 4, 6 }

(MGSE9-12.F.IF.6, DOK1) Find the slope of each line.

- 6) (-6, 11), (13, 15)

- 7) (-19, 15), (5, 15)

- A) $\frac{4}{19}$
 B) $\frac{19}{4}$
 C) $-\frac{4}{19}$
 D) $-\frac{19}{4}$

- A) $\frac{5}{2}$
 B) 0
 C) Undefined
 D) $-\frac{5}{2}$

- 8) Write the equation of the given ordered pairs.

(0, 14), (1, 12), (2, 10), (3, 8)

$y = -2x + 14$

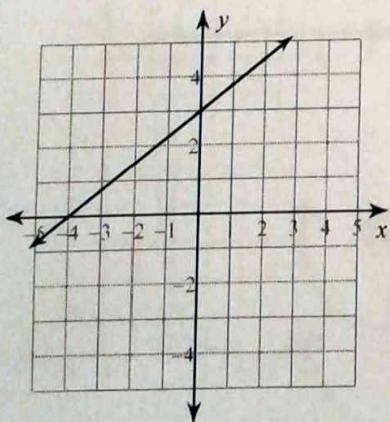
(MGSE9-12.F.IF.6, DOK1) Given the equation below, identify the slope and the y-intercept.

9) $y = 2x - 1$

$m = 2$ $b = -1$

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

10)



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

(MGSE9-12.A.REI.3, DOK1) Solve each equation.

11) $x - 7 + 8x = 2$

A) No solution.

C) $\{6\}$

B) $\{-6\}$

D) $\{1\}$

Find the x and y intercepts.

12) $2x - 4y = 32$

$(0, -8)$ $(16, 0)$

(MGSE9-12.A.REI.3, DOK1) Solve each equation.

13) $4m + 5m = 9$

A) $\{1\}$

B) { All real numbers. }

C) $\{-16\}$

D) $\{8\}$

14) $6(1 - 3r) = 150$

A) $\{6\}$

B) $\{4\}$

C) $\{-8\}$

D) No solution.

15) $6(5x + 6) = 246$

A) $\{-4\}$

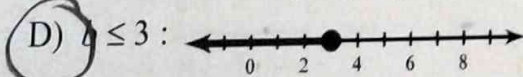
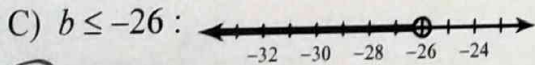
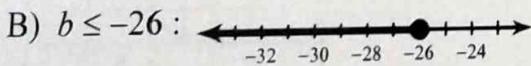
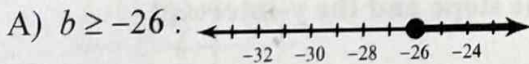
B) $\{-12\}$

C) $\{5\}$

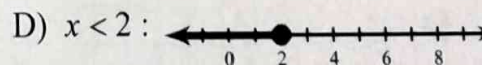
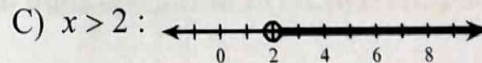
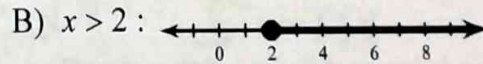
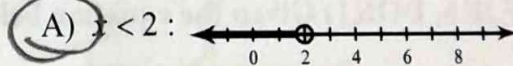
D) $\{7\}$

(MGSE9-12.A.REI.3, DOK1) Solve each inequality and graph its solution.

16) $2 - b - b \geq -4$



17) $-3x - 6x > -18$



18) Classify each exponential function as growth or decay. Then sketch a graph of each.

A) $y = 5 \cdot 0.44^x$

B) $y = 3 \cdot \left(\frac{5}{3}\right)^x$

C) $y = 3 \cdot \left(\frac{4}{3}\right)^x$

D) $y = 4 \cdot \left(\frac{1}{3}\right)^x$

A) Decay

B) Growth

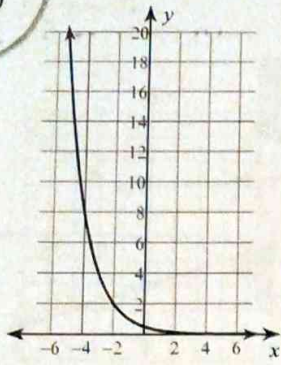
C) Growth

D) Decay

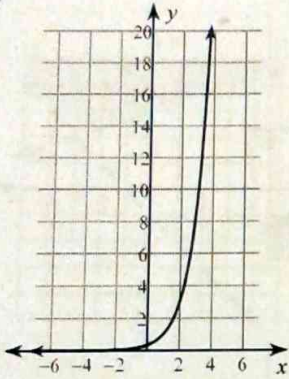
(MGSE9-12.F.IF.7a, DOK2) Sketch the graph of each function.

19) $y = \frac{1}{2} \cdot \left(\frac{1}{2}\right)^x$

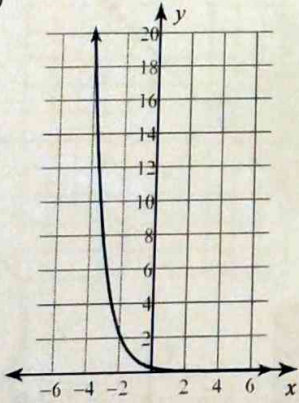
A)



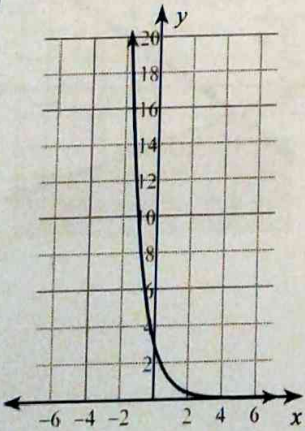
B)



C)

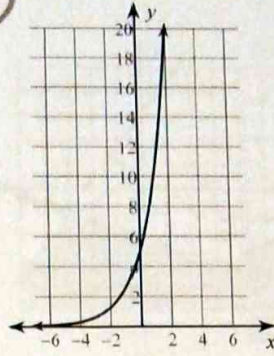


D)

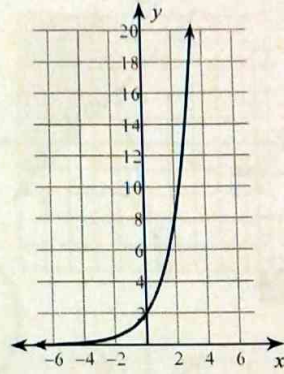


20) $y = 5 \cdot 2^x$

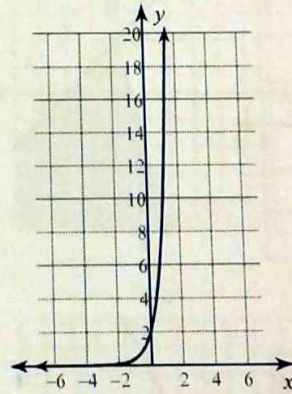
A)



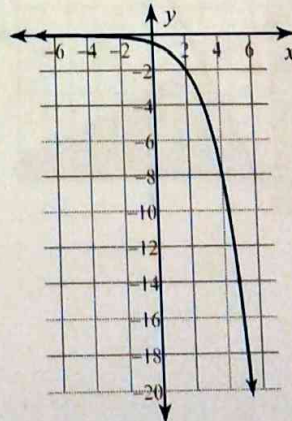
B)



C)



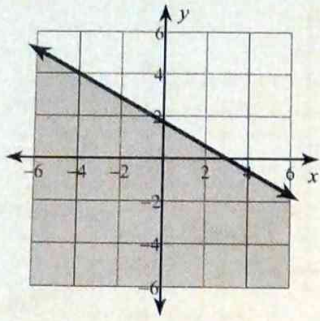
D)



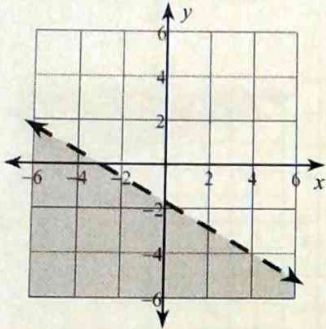
(MGSE9-12.A.REI.12, DOK1)
 Sketch the graph of each linear inequality.

21) $y > -\frac{7}{4}x - 3$

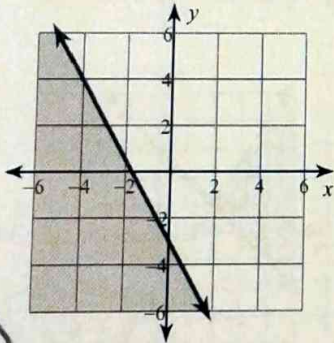
A)



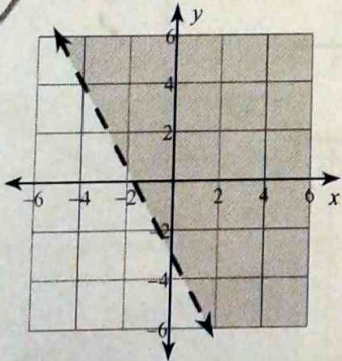
B)



C)

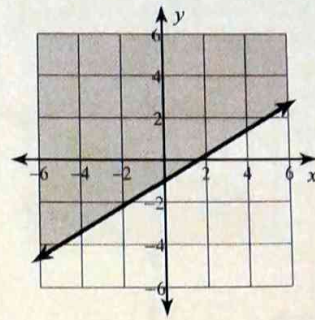


D)

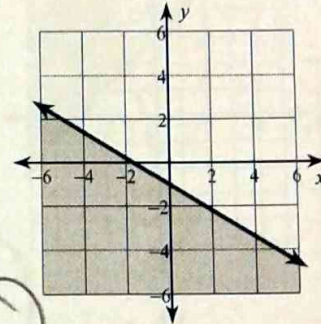


22) $y \leq \frac{3}{5}x - 1$

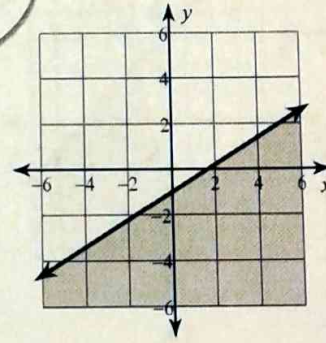
A)



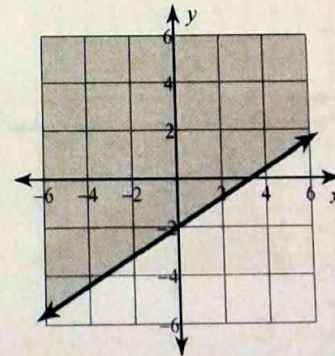
B)



C)



D)

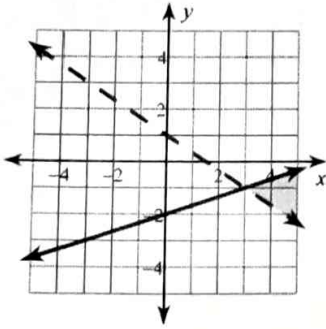


(MGSE9-12.A.REI.12, DOK1) Sketch the solution to each system of inequalities.

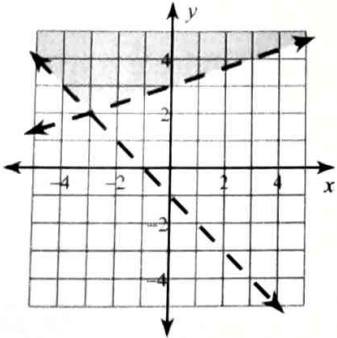
23) $y \leq -\frac{2}{3}x + 1$

$y \leq \frac{1}{3}x - 2$

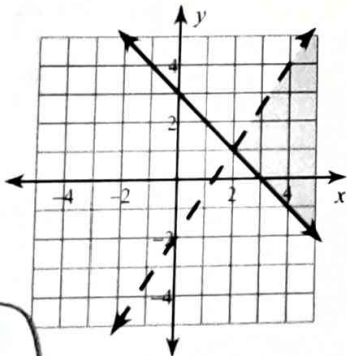
A)



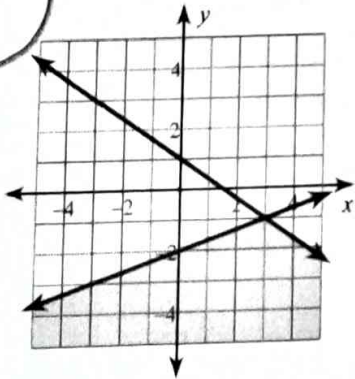
B)



C)



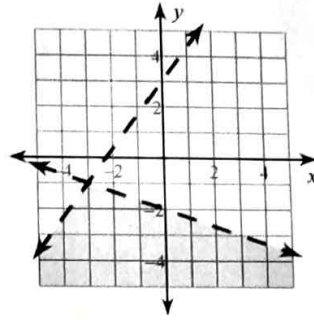
D)



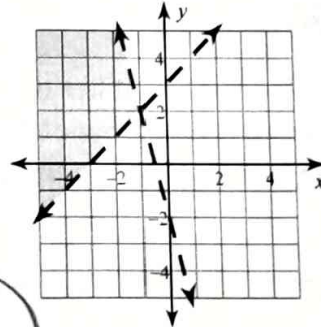
24) $y < -4x - 2$

$y \leq x + 3$

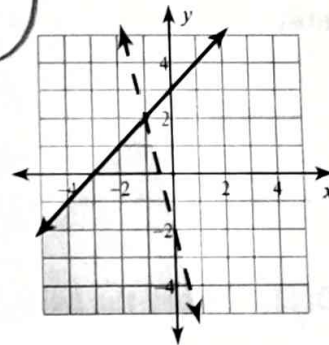
A)



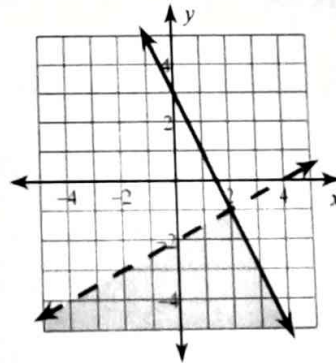
B)



C)

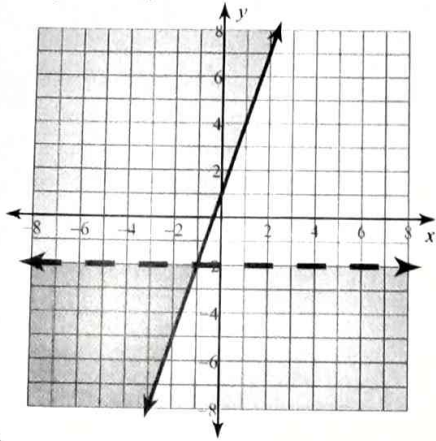


D)



(MGSE9-12.A.REI.12, DOK3)

25) Tell whether (6, 2) is a solution and explain why or why not?



- A) No, it is not a solution because it lies on the dashed border of the feasible region.
- B) No, because it lies on a solid border of the feasible region.
- C) Yes, it is a solution because it lies in the feasible region.

Write the explicit formula for the arithmetic sequence.

26) 30, 25, 20, 15, ...

$$a_n = 35 - 5n$$

(MGSE9-12.F.LE.2, DOK2) Choose the best answer.

27) Based on the geometric sequence 3, -12, 48, -192,..... what would the formula be for finding the 18th term?

A) ~~$y = 4 \cdot (-3)^{18-1}$~~

B) ~~$y = 3 \cdot (-4)^{18-1}$~~

C) ~~$y = 4 \cdot (-3)^{17-1}$~~

D) ~~$y = 4 \cdot (-3)^{18-1}$~~

$$a_n = 3 \cdot (-4)^{n-1}$$

(MGSE9-12.F.BF.2, DOK1)

28) What is the 15th term of the arithmetic sequence -15, -7, 1, 9,.....

$$a_n = -23 + 8n$$

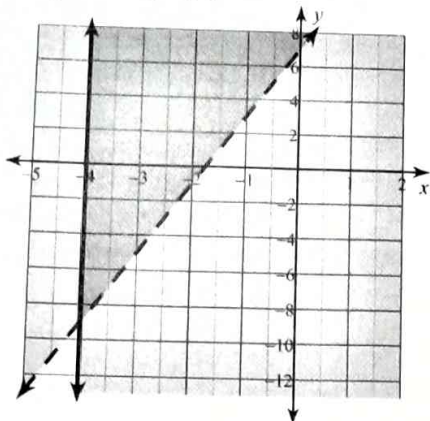
Find the common ratio of the Geometric Sequence and write the explicit formula.

29) -5, -10, -20, -40, ...

$$r = 2$$

$$a_n = -5 \cdot 2^{n-1}$$

30) Tell whether $(-3, 4)$ is a solution and explain why or why not.



- A) Yes, because it lies on a solid border of the feasible region.
- B) No, because it lies on a solid border of the feasible region.
- C) No, it is not a solution because it lies on the dashed border of the feasible region.
- D) Yes, it is a solution because it lies in the feasible region.**

32

$$7x + 2(-2x + 4) = 8$$

$$7x - 4x + 8 = 8$$

$$3x = 0$$

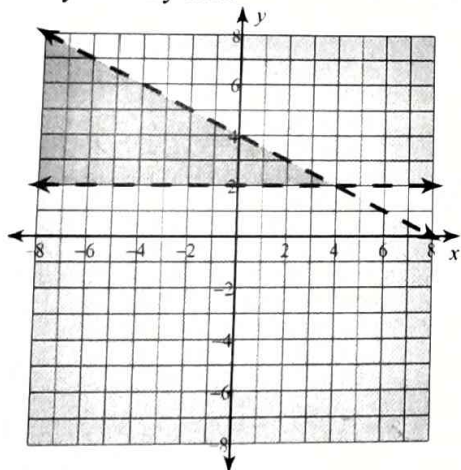
$$x = 0$$

$$y = -2(0) + 4$$

$$y = 4$$

$$(0, 4)$$

31) Tell whether $(4, -6)$ is a solution and explain why or why not.



- A) Yes, because it lies on a solid border of the feasible region.
- B) No, because it does not lie in the feasible region.**
- C) No, it is not a solution because it lies on the dashed border of the feasible region.
- D) Yes, it is a solution because it lies in the feasible region.

33

$$-2(x) - (x - 11) = -4$$

$$-2x - x + 11 = -4$$

$$-3x + 11 = -4$$

$$-3x = -15$$

$$x = 5$$

$$y = 5 - 11$$

$$y = -6$$

$$(5, -6)$$

34

$$2x - 2 = 7x + 13$$

$$-5x - 2 = 13$$

$$-5x = 15$$

$$x = -3$$

$$y = 2(-3) - 2$$

$$y = -6 - 2$$

$$y = -8$$

$$(2, -4)$$

$$(-3, -14)$$

Solve each system by substitution.

32) $y = -2x + 4$
 $7x + 2y = 8$

33) $y = x - 11$
 $-2x - y = -4$

35

$$6x - 16 = -6x + 8$$

$$12x - 16 = 8$$

$$12x = 24$$

$$x = 2$$

35) $y = 6x - 16$
 $y = -6x + 8$

$$y = 6(2) - 16$$

$$y = 12 - 16$$

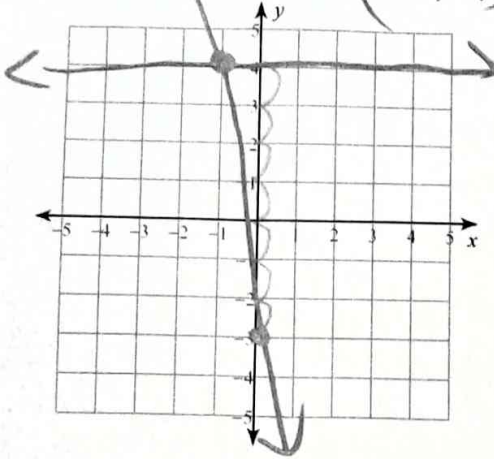
$$y = -4$$

Solve each system by graphing.

36) $y = -7x - 3$

$y = 4$

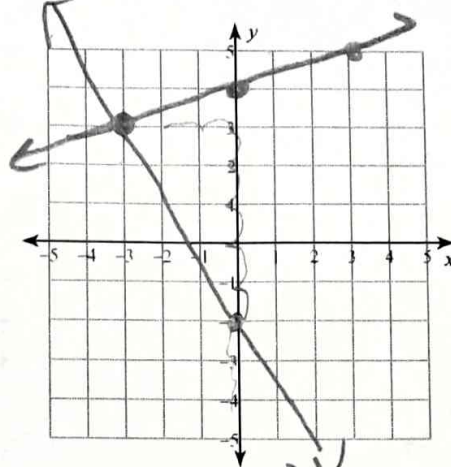
$(-1, 4)$



37) $y = \frac{1}{3}x + 4$

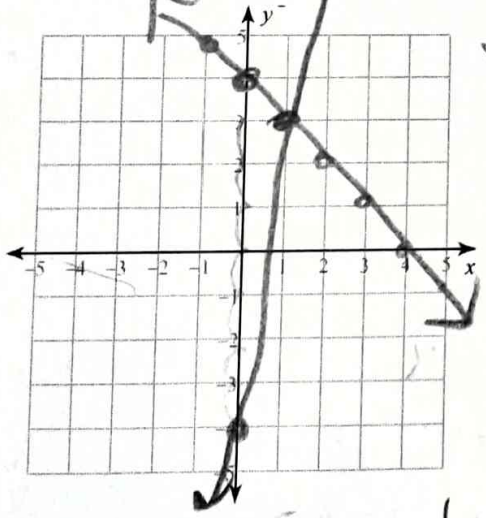
$y = -\frac{5}{3}x - 2$

$(-3, 3)$



38) $7x - y = 4$
 $x + y = 4$

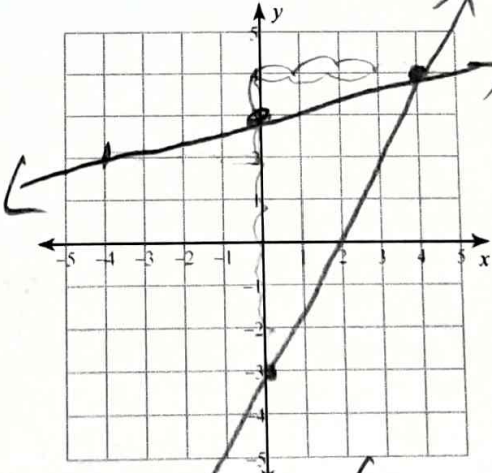
$7x - y = 4$
 $-y = -7x + 4$
 $y = 7x - 4$



$y = -x + 4$ $(1, 3)$

39) $7x - 4y = 12$
 $x - 4y = -12$

$7x - 4y = 12$
 $-4y = -7x + 12$
 $\frac{-4y}{-4} = \frac{-7x + 12}{-4}$



$y = \frac{7}{4}x - 3$
 $x - 4y = -12$
 $-4y = -x - 12$
 $y = \frac{1}{4}x + 3$

$(4, 4)$