

Study Guide-Final Exam Spring 2019

Solve each equation. (MFAEI1.b)

1) $114 = 6 - 9x$

- A) {18} B) {6}
 C) {-12} D) {-20}

2) $-17 = 1 - 5p - 8$

- A) {14} B) {9}
 C) {-3} D) {2}

3) $1 + 3r + 6r = -8$

- A) { All real numbers. }
 B) {-1}
 C) {3}
 D) {-2}

4) $4x + 5 + 4 = -3$

- A) {-5} B) {10}
 C) {13} D) {-3}

5) $3b = -3(-8b - 7)$

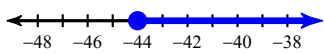
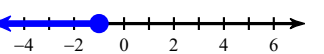
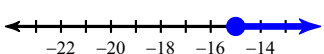
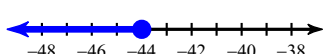
- A) { All real numbers. }
 B) {-10}
 C) {8}
 D) {-1}

6) $7(5a - 8) = 37 + 4a$

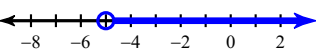
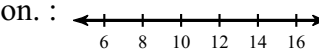
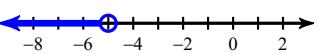
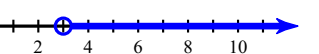
- A) {-10} B) {3}
 C) {-7} D) {2}

Solve each inequality and graph its solution.

7) $-2 + 8b \geq -122$

- A) $b \geq -44$: 
 B) $b \leq -1$: 
 C) $b \geq -15$: 
 D) $b \leq -44$: 

8) $-6n + 3n < -9$

- A) $n > -5$: 
 B) No solution. : 
 C) $n < -5$: 
 D) $n > 3$: 

9) When I solved an inequality my answer was $x \leq 3$, is $x=20$ a solution to the inequality?

- A) Yes, 20 is more than 3 B) No, 20 is less than 3
 C) No, 20 is not less than 3 D) Yes, 20 is less than 3

Solve each equation for the indicated variable.

10) $g = ca + b$, for a

A) $a = -g - b - c$

B) $a = \frac{g - b}{c}$

C) $a = -g + b + c$

D) $a = cg - cb$

11) Eli needs to save enough money to buy a speaker system which cost \$250.

He has \$100 and he earns \$50 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 speaker system.

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

12) $(-20, -13), (-20, 17)$

13) $(20, 8), (4, 8)$

14) Compare the slopes of the following lines.

Line 1: $(3,2) (5,9)$

Line 2: $(8,3) (15,4)$

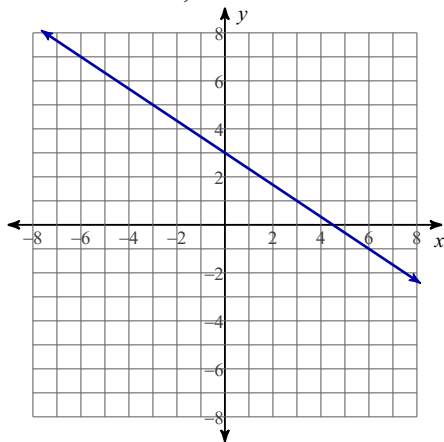
A) The slope of line 1 is the same as the slope of line 2

B) The slope of line 2 is greater than the slope in line 1

C) The slope of line 1 is greater than the slope in line 2

D) The slope of line 1 is zero and the slope of line 2 is undefined

15) Determine if each statement is true or false. If false, write the correct answer.



A) The slope is negative

B) The equation of the line is $y = -\frac{2}{3}x - 3$

C) The y-intercept is 3

D) The slope of the line is $\frac{2}{3}$

16) Given the line $y = 5x - 7$ determine if each statement is true or false. If false, write the correct statement.

A) The slope is negative

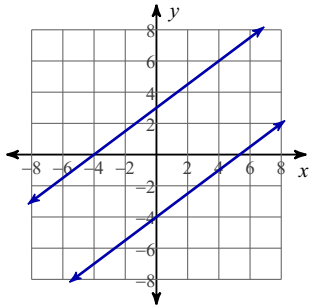
B) The line rises from left to right

C) The slope is -7

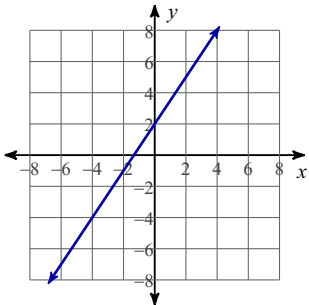
D) The y-intercept is 5

17) Label each of the following graphs as:
 One solution
 No solution
 Infinite number of solutions

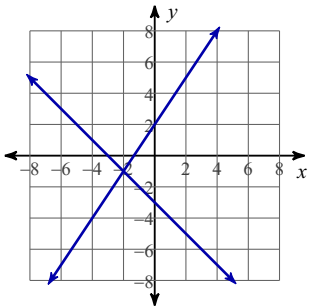
A)



B)

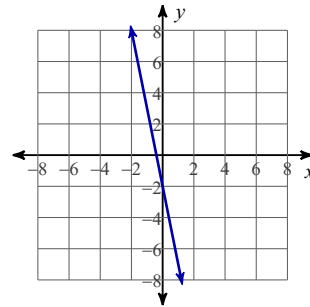


C)

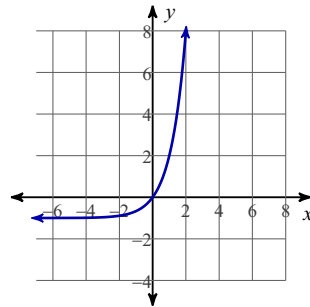


18) Label each of the followings as:
 Exponential Growth
 Exponential Decay
 Linear-Positive Slope
 Linear -Negative Slope

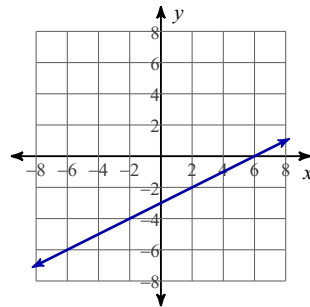
A)



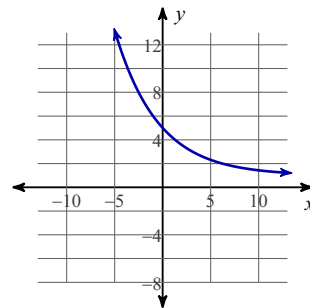
B)



C)



D)



19) What type of function is the function represented by the table? Explain your answer.

x	0	1	2	3
y	486	162	54	18

- A) Exponential Growth, since the y-values are decreasing
- B) Exponential Decay, the "b" value is between 0 and 1
- C) Exponential Growth, the "b" value is greater than 1
- D) Neither, since there is no "b" value

20) What is the rule for the following function?

x	0	1	2	3
y	486	162	54	18

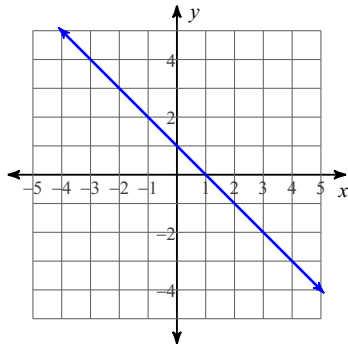
- A) $y = 3 \cdot 486^x$
- B) $y = \frac{1}{3} \cdot 3^x$
- C) $y = 162 \cdot \left(\frac{1}{3}\right)^x$
- D) $y = 486 \cdot \left(\frac{1}{3}\right)^x$

21) Label each of the following as:
Exponential Growth or
Exponential Decay

- A) $y = 0.2 \cdot \left(\frac{5}{3}\right)^x$
- B) $y = 0.3 \cdot \left(\frac{1}{5}\right)^x$
- C) $y = 6 \cdot \left(\frac{10}{3}\right)^x$
- D) $y = 3 \cdot \left(\frac{1}{3}\right)^x$

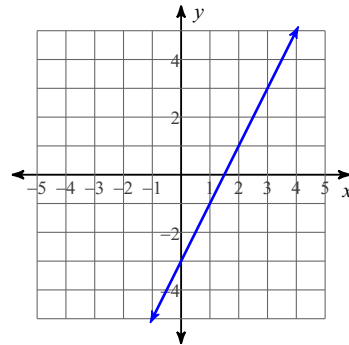
Write the slope-intercept form of the equation of each line.

22)



- A) $y = x + 1$
- B) $y = -x + 1$
- C) $y = -5x + 1$
- D) $y = 5x + 1$

23)



- A) $y = -3x + 3$
- B) $y = -2x - 3$
- C) $y = 3x - 3$
- D) $y = 2x - 3$

24) $9x + 2y = 8$

- A) $y = 4x - \frac{9}{2}$
- B) $y = 5x + 4$
- C) $y = -\frac{9}{2}x + 4$
- D) $y = x + 4$

Write the slope-intercept form of the equation of the line through the given points.

25) through: $(0, -1)$ and $(-3, 2)$

- A) $y = -x - 1$ B) $y = 4x - 1$
C) $y = x - 1$ D) $y = -4x - 1$

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

26) $9x - 8y = 1$
 $-9x + 3y = -6$

- A) No solution
B) 1
C) Infinite number of solutions
D) -1

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

27) $y = 6x - 14$
 $y = 3x - 5$

- A) -4 B) 6
C) 3 D) -3

28) $3x - y = -19$
 $y = 4x + 23$

- A) 4 B) -4
C) 1 D) 6

Solve each system by elimination.

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

$$\begin{aligned} -2x - 9y &= -4 \\ 2x + 9y &= -4 \end{aligned}$$

- A) Infinite number of solutions, final result is $0=0$, true statement
B) No solution, final result is $0=0$, true statement
C) No solution, final result is $0 = -8$, true statement
D) One solution, final result is $x=0$

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

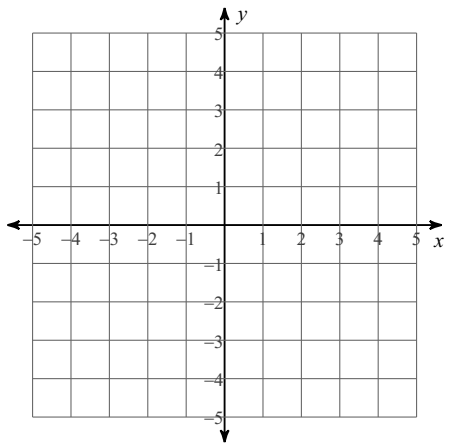
$$\begin{aligned} -8x - 10y &= 15 \\ 8x - 10y &= -15 \end{aligned}$$

- A) Two lines that intersect at one point B) None of the above
C) One line on top of another line D) Two parallel lines

Solve each system by graphing.

31) $y = -x + 1$

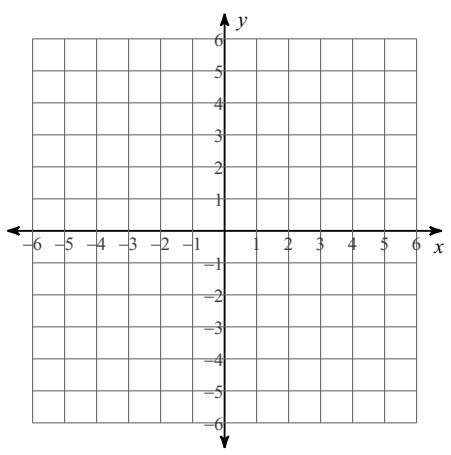
$$y = -\frac{1}{4}x - 2$$



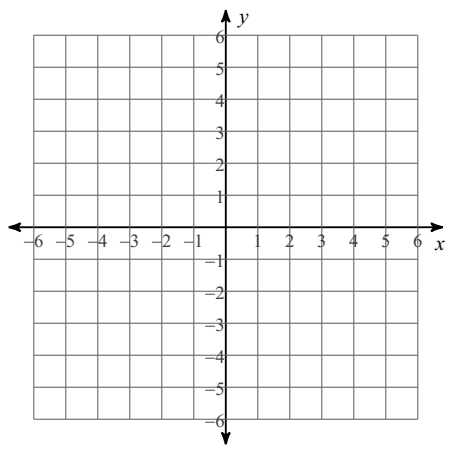
- A) $(-1, 3)$
- B) Infinite number of solutions
- C) $(4, -3)$
- D) $(-4, -3)$

Sketch the graph of each line.

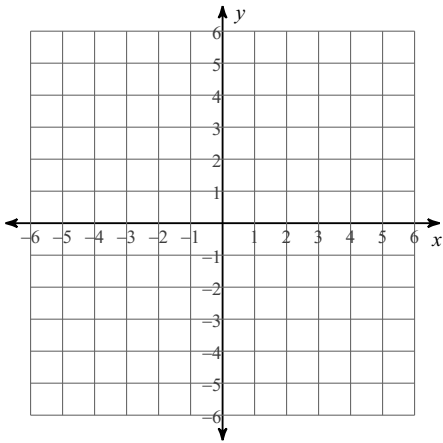
32) $y = \frac{6}{5}x + 5$



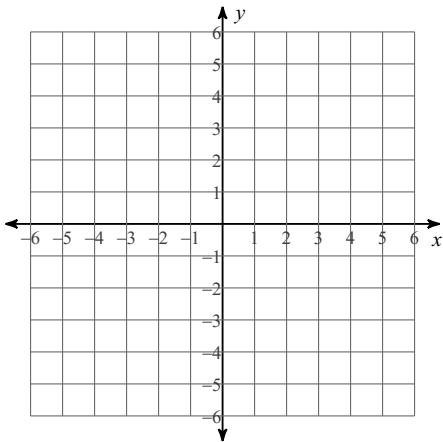
33) $y = -2x + 5$



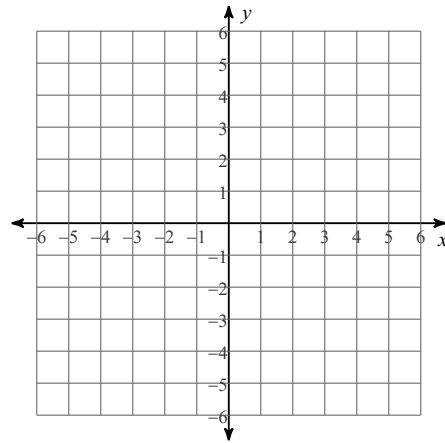
34) $y = -2$



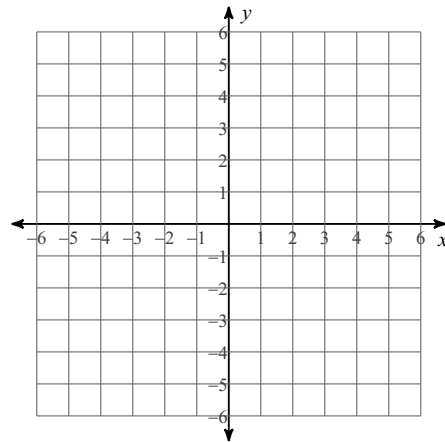
36) $3x + 2y = 10$



35) $x = 5$



37) $6x - 5y = 10$



38) The triangle ABC with coordinates A(-2,-2) B(-6,-3) C (4,6) is dilated by a factor of 0.5. What are the coordinates of the image?

- A) A'(-4, -4) B(-12, -6) C(8,12)
- B) A'(-1, -1) B(-3, 1.5) C(2,3)
- C) A'(-2,-2) B'(-6,-3) C' (4,6)
- D) A'(0,0) B(-4, -1) C(6,8)

Find the coordinates of the vertices of each figure after the given transformation.

39) translation: $(x, y) \rightarrow (x - 2, y + 1)$
 $R(3, 1), S(2, 3), T(5, 1)$

- A) $R'(-3, -3), S'(-4, -1), T'(-1, -3)$
- B) $R'(-2, 3), S'(-3, 5), T'(0, 3)$
- C) $R'(-4, -1), S'(-5, 1), T'(-2, -1)$
- D) $R'(1, 2), S'(0, 4), T'(3, 2)$

40) rotation 180° about the origin
 $E(2, -1), D(0, 4), C(3, 4)$

- A) $D'(0, -4), C'(3, -4), E'(2, 1)$
- B) $E'(-2, 1), D'(0, -4), C'(-3, -4)$
- C) $E'(-1, -2), D'(4, 0), C'(4, -3)$
- D) $E'(1, 2), D'(-4, 0), C'(-4, 3)$

41) rotation 90° clockwise about the origin

$P(-2, -4), Q(-4, 1), R(-2, 1), S(-1, -4)$

A) $P'(2, 4), Q'(4, -1), R'(2, -1), S'(1, 4)$

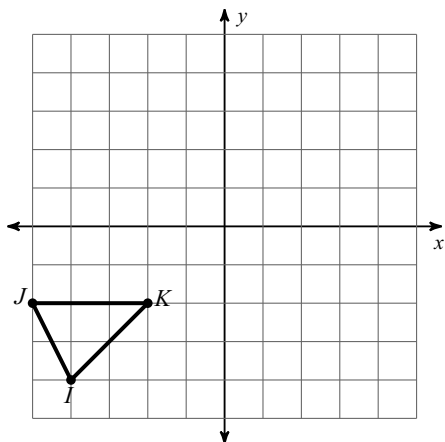
B) $Q'(-4, -3), R'(-2, -3), S'(-1, 2), P'(-2, 2)$

C) $P'(4, -2), Q'(-1, -4), R'(-1, -2), S'(4, -1)$

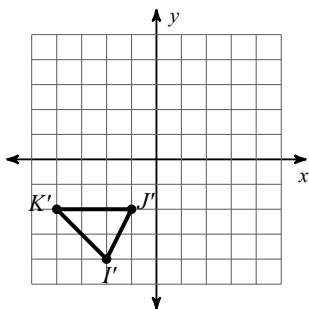
D) $P'(-4, 2), Q'(1, 4), R'(1, 2), S'(-4, 1)$

Graph the image of the figure using the transformation given.

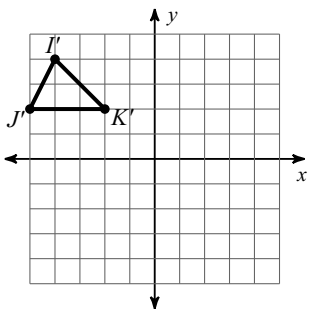
42) reflection across $x = -3$



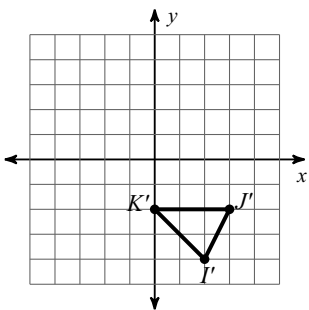
A)



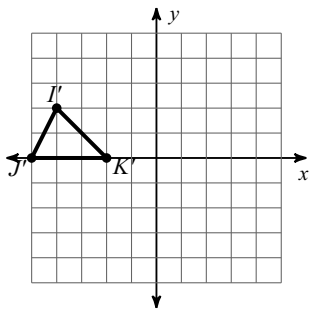
B)



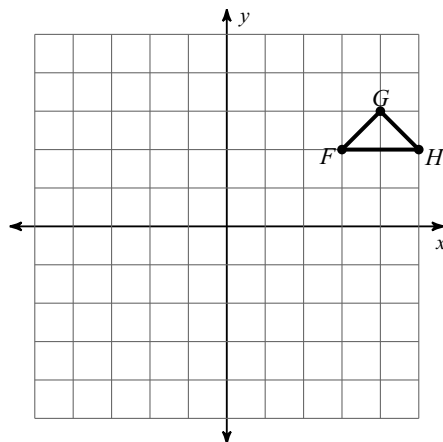
C)



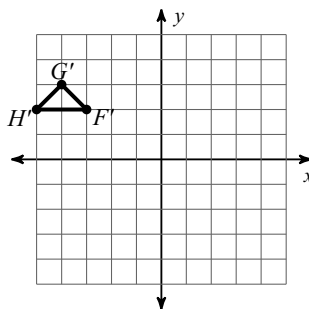
D)



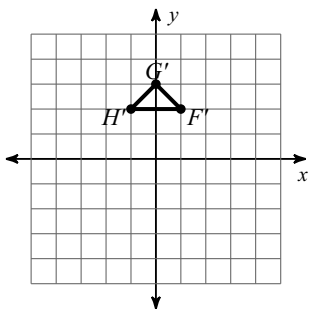
43) reflection across $y = 3$



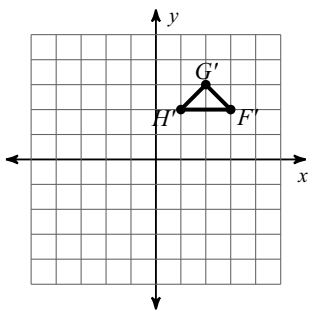
A)



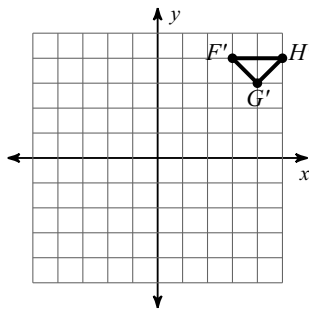
B)



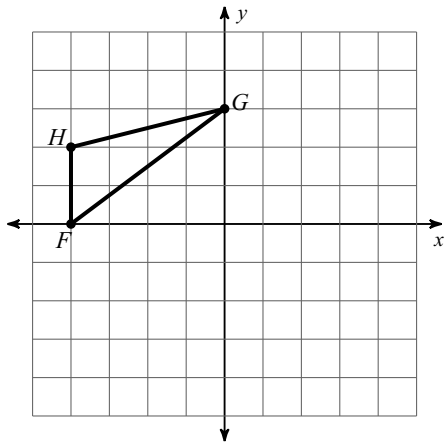
C)



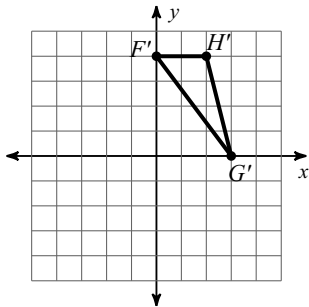
D)



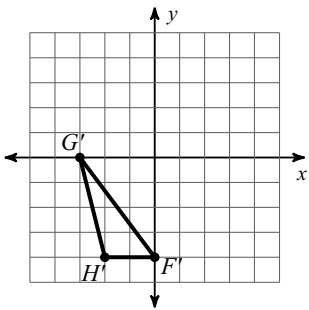
44) rotation 180° about the origin



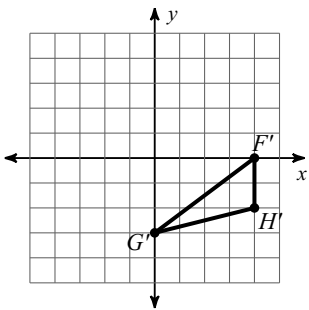
A)



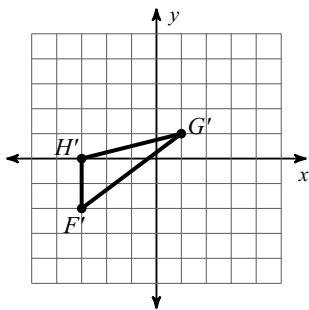
B)



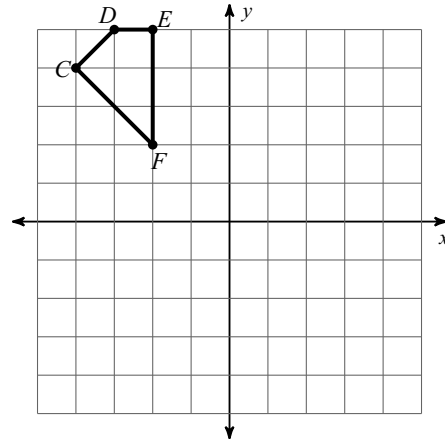
C)



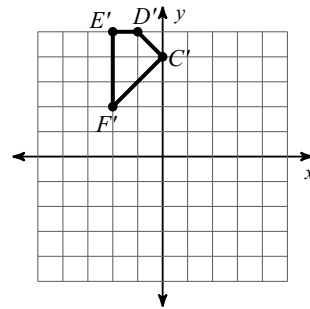
D)



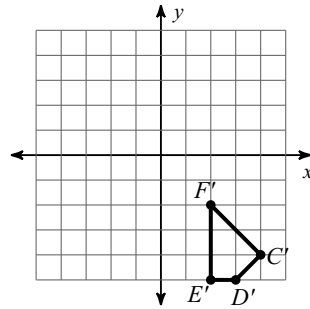
45) rotation 90° counterclockwise about the origin



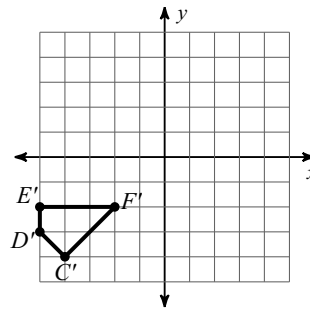
A)



B)



C)



D)

