

Study Guide-Final Exam Spring 2019

Solve each equation. (MFAE11.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) $3b = -3(-8b - 7)$


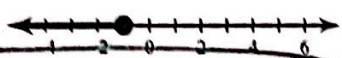
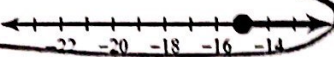
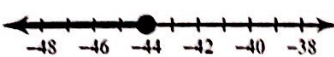
- A) { All real numbers. }
 B) {-10}
 C) {8}
 *D) {-1}

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

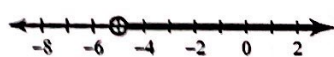
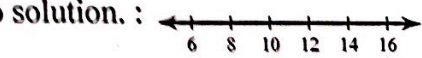
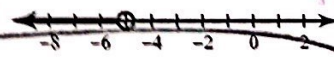
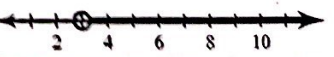
- A) {-10} *B) {3}
 C) {-7} D) {2}

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.

$$50x + 100 = 250$$

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

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

Undefined

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

0

- 14) Compare the slopes of the following lines.

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

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

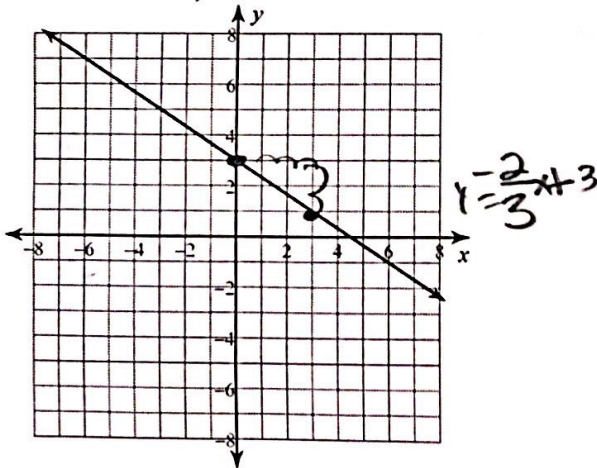
A) The slope of line 1 is the same as the slope of line 2

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.



- 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 **F**, positive

B) The line rises from left to right **T**

C) The slope is -7 **F**, $m = 5$

D) The y-intercept is 5 **F**, $b = -7$

A) The slope is negative **T**

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

C) The y-intercept is 3 **T**

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

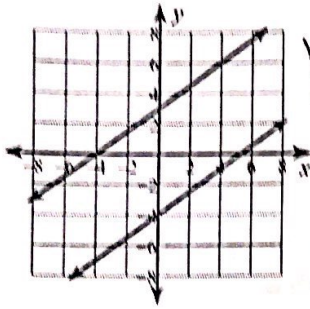
17) Label each of the following graphs as:

One solution

No solution

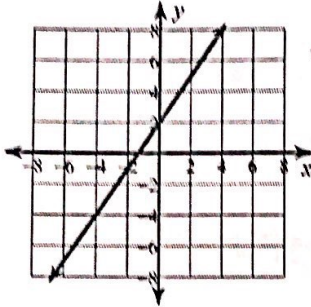
Infinite number of solutions

A)



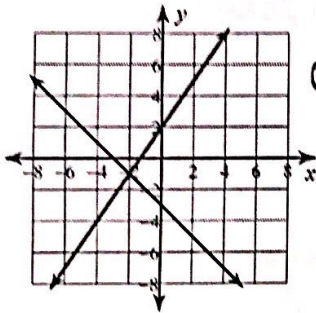
no solution

B)



infinite # of solutions

C)



one solution

18) Label each of the followings as:

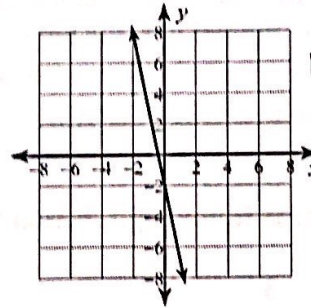
Exponential Growth

Exponential Decay

Linear-Positive Slope

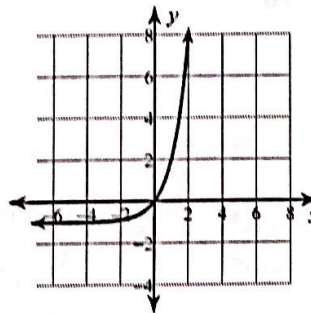
Linear -Negative Slope

A)



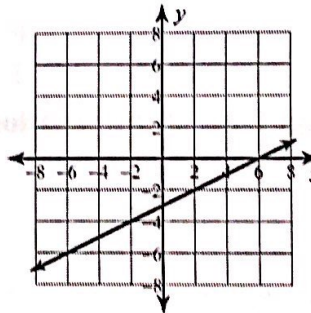
Linear Negative slope

B)



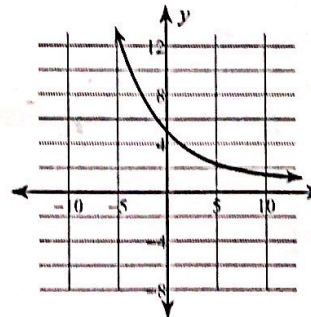
Exponential Growth

*C)



Linear Positive slope

D)



Exponential Decay

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

$$\frac{18}{54} = \frac{1}{3}$$

$$\frac{54}{162} = \frac{1}{3}$$

$$\frac{162}{486} = \frac{1}{3}$$

- 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

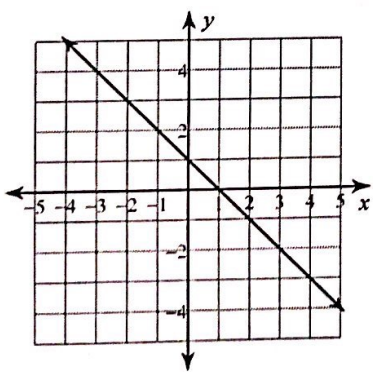
- A) $y = 3 \cdot 486^x$
- B) $y = \frac{1}{3} \cdot 3^x$
- C) $y = 162 \cdot \left(\frac{1}{3}\right)^x$
- *D) $y = 486 \cdot \left(\frac{1}{3}\right)^x$**

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

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

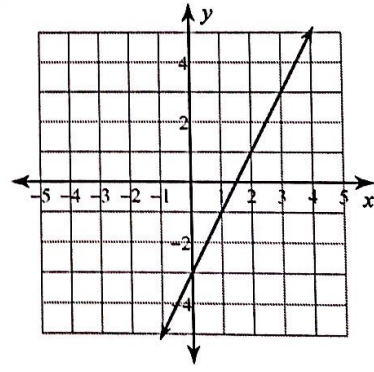
Write the slope-intercept form of the equation of each line.

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.

$-2x - 9y = -4$
 $2x + 9y = -4$

$0 = -8$

- 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?

$-8x - 10y = 15$
 $8x - 10y = -15$
 $-20y = 0$

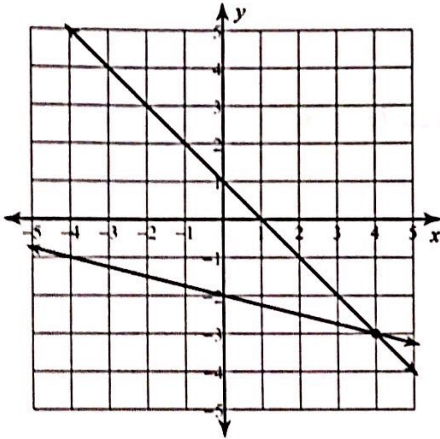
$y = 0$

- *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) $y = -x + 1$

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

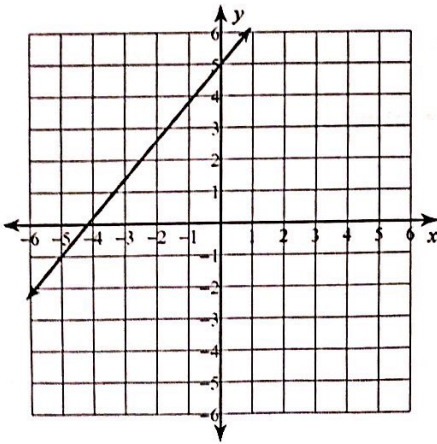


(4, -3)

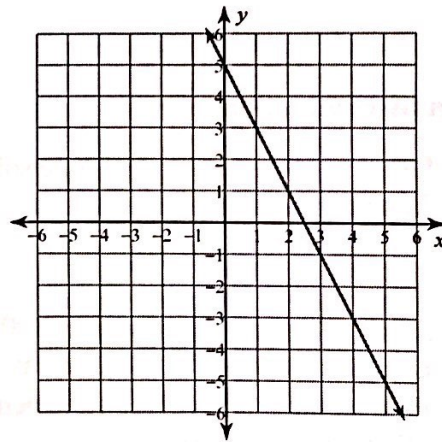
- A) (-1, 3)
- B) Infinite number of solutions
- *C) (4, -3)
- D) (-4, -3)

Sketch the graph of each line.

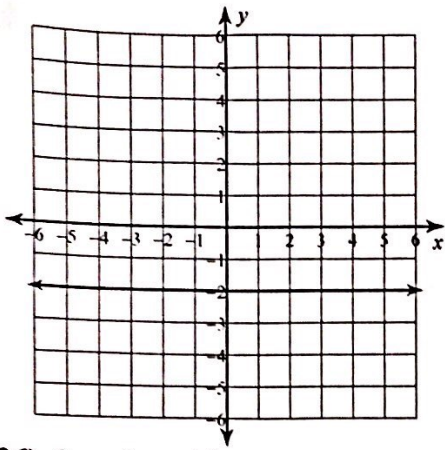
32) $y = \frac{6}{5}x + 5$



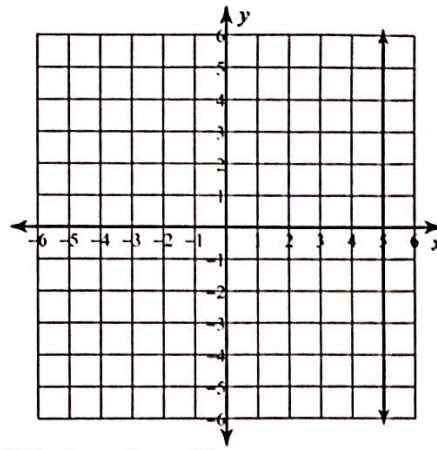
33) $y = -2x + 5$



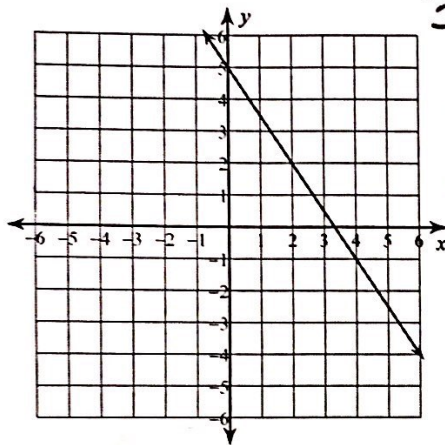
34) $y = -2$



35) $x = 5$



36) $3x + 2y = 10$

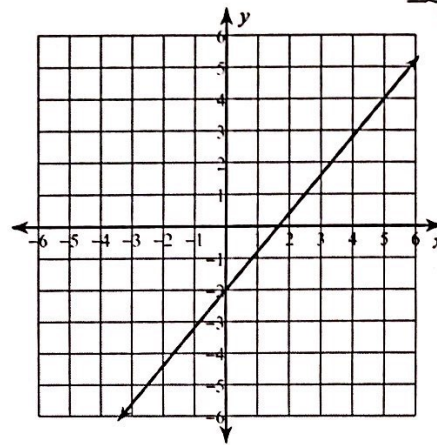


$$3x + 2y = 10$$

$$\frac{2y}{2} = \frac{-3x + 10}{2}$$

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

37) $6x - 5y = 10$



$$-5y = -6x + 10$$

$$y = \frac{6}{5}x - 2$$

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

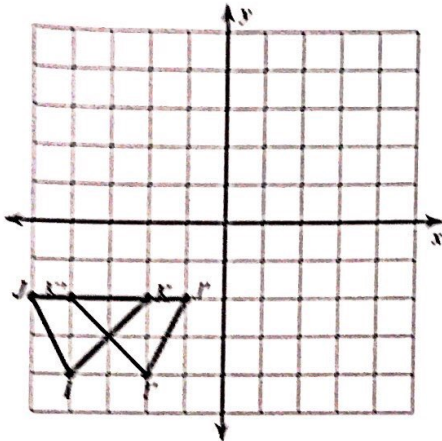
B) $Q'(-4, -3), R'(-2, -3), S'(-1, 2), P'(-2, 2)$

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

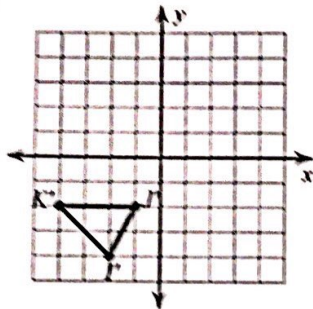
*D) $P'(-4, 2), Q'(1, 4), R'(1, 2), S'(-4, 1)$

Graph the image of the figure using the transformation given.

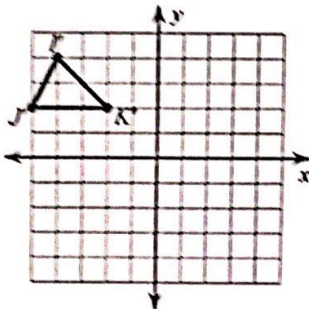
42) reflection across $x = -3$



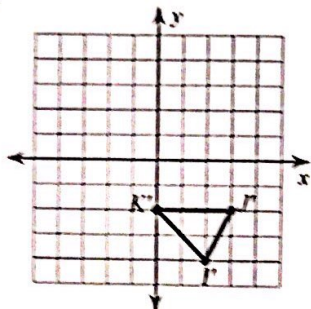
*A)



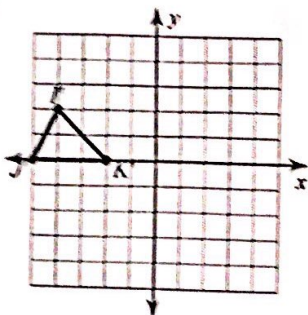
B)



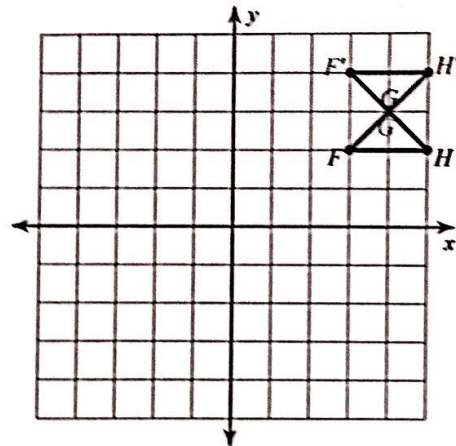
C)



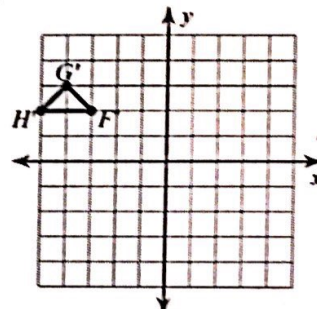
D)



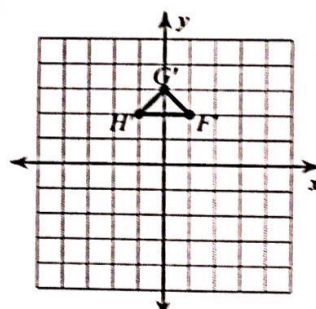
43) reflection across $y = 3$



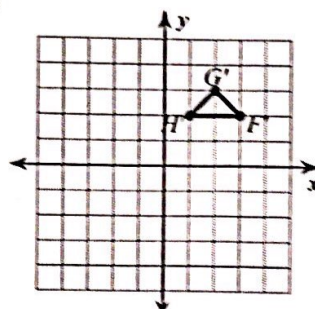
A)



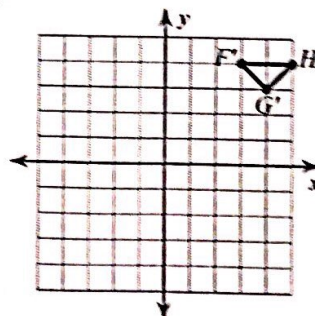
B)



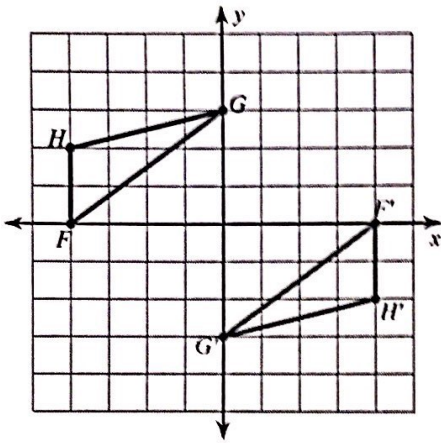
C)



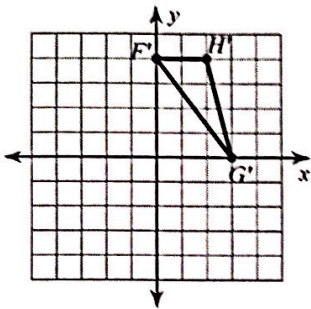
*D)



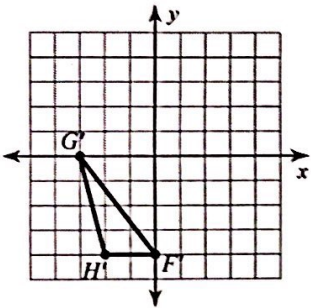
44) rotation 180° about the origin



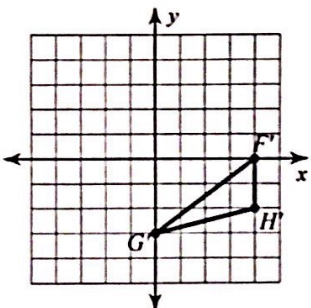
A)



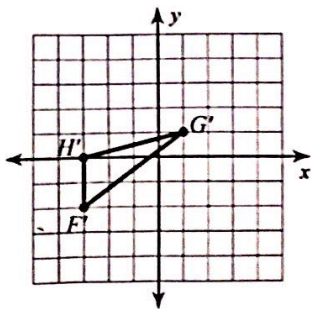
B)



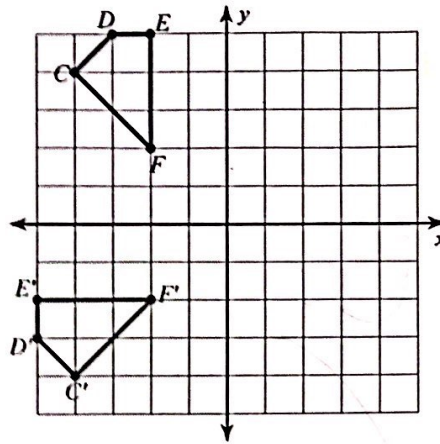
*C)



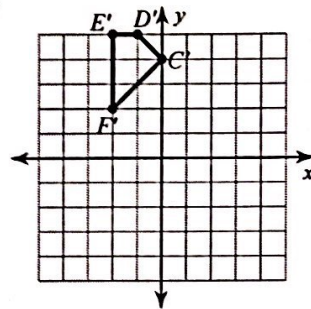
D)



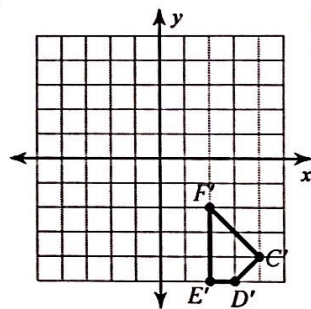
45) rotation 90° counterclockwise about the origin



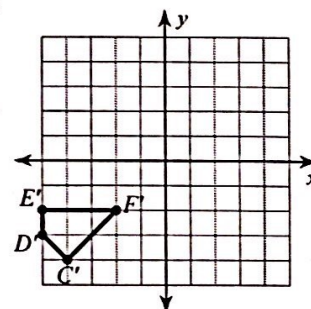
A)



B)



*C)



D)

