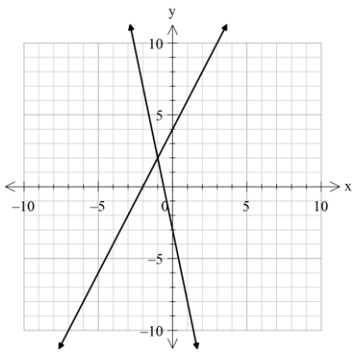
Math 1201

Chapter 7 SAMPLE Test Systems of Equations

Multiple Choice (9 marks)

1. What is the solution to the system graphed?



A. (2, -1)

B. (1, -2)

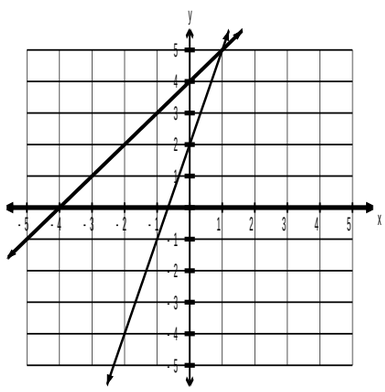
C. (-1, 2)

D. (-2, 1)

2. What is the solution to the system of equations $\begin{cases} y = 2x - 1 \\ y = -x + 5 \end{cases}$?

A. (-2, -3) B. (-3, 2) C. (3, 2) D. (2, 3)

3. Which two equations are represented in the following graph?



A. $\begin{cases} y = -x + 4 \\ y = -3x + 2 \end{cases}$

B. $\begin{cases} y = x + 4 \\ y = \frac{1}{3}x + 2 \end{cases}$

C. $\begin{cases} y = x + 4 \\ y = 3x + 2 \end{cases}$

D. $\begin{cases} y = -x + 4 \\ y = -\frac{1}{3}x + 2 \end{cases}$

4. Which system has exactly one solution?

A. $\begin{cases} y + 4x = -2 \\ y = -4x + 5 \end{cases}$ B. $\begin{cases} 6x + 3y = -1 \\ 2x + y = 4 \end{cases}$

C. $\begin{cases} y = 4x - 5 \\ y = -\frac{1}{4}x - 5 \end{cases}$ D. $\begin{cases} 3x - y = 2 \\ y - 4 = 3(x - 2) \end{cases}$

5. In which system are the lines parallel?

A. $\begin{cases} 2x - y = 3 \\ x + 2y = 3 \end{cases}$ B. $\begin{cases} 2x + 3y = 5 \\ 6x + 9y = 1 \end{cases}$

C. $\begin{cases} x - y = 10 \\ x + y = 10 \end{cases}$ D. $\begin{cases} 3x - y = 1 \\ 4x + y = 2 \end{cases}$

6. Julie is asked to solve the system below by elimination. Which of the following steps would be the best way to begin?

$$\begin{array}{l} ① \ 2x + y = -3 \ ? \\ ② \ 3x - 2y = 2 \end{array}$$

A. Multiply ① by 2 and multiply ② by 3
B. Multiply ② by 2
C. Multiply ① by 2
D. Multiply ② by 2 and multiply ① by -2

7. For which system is (-3, 5) the solution?

A. $\begin{cases} 2x + y = -1 \\ x + 2y = 7 \end{cases}$

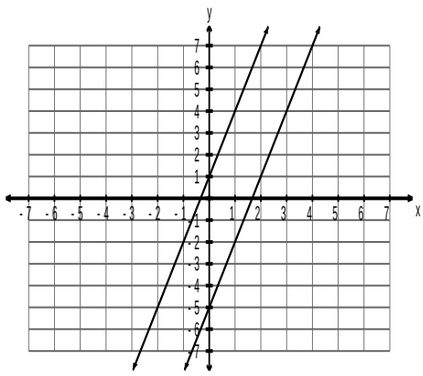
B. $\begin{cases} 5x - 3y = 12 \\ 2x + 3y = 18 \end{cases}$

C. $\begin{cases} 4x - 3y = -27 \\ 2x + 4y = 12 \end{cases}$

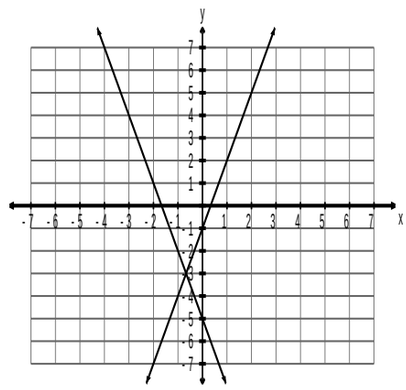
D. $\begin{cases} 3x + 2y = 1 \\ 6x - 4y = 2 \end{cases}$

8. Which graph represents the solution to the linear system $\begin{cases} y = -3x - 5 \\ y = 3x + 1 \end{cases}$?

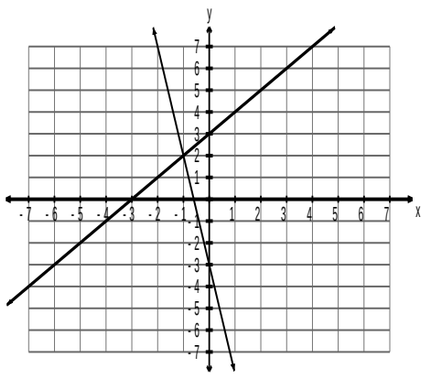
A.



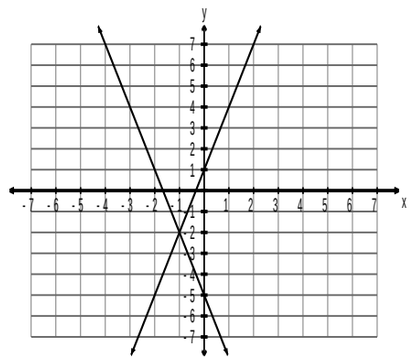
B.



C.



D.



9. Sam scored 80% on Part A of a math test and 92% on part B of the math test. His total mark on the test was 63. The total possible marks for the test was 75. Which system of equations represents this situation?

A. $\begin{cases} 80A + 92B = 63 \\ A + B = 75 \end{cases}$

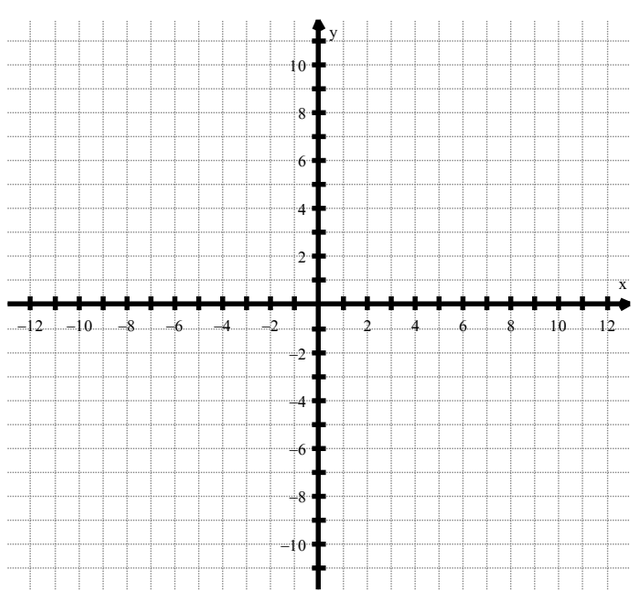
B. $\begin{cases} 0.80A + 0.92B = 63 \\ A + B = 75 \end{cases}$

C. $\begin{cases} 80A + 92B = 75 \\ A + B = 63 \end{cases}$

D. $\begin{cases} 0.80A + 0.92B = 75 \\ A + B = 63 \end{cases}$

10. Solve the system by graphing. (3 marks)

$$\begin{cases} y = \frac{2}{3}x + 1 \\ y - 2 = -3(x + 4) \end{cases}$$



11. Without solving the system, determine whether there are 0, 1 or an infinite number of solutions. Explain how you know! (3 marks)

$$\begin{cases} 3x + 2y = 8 \\ 4.5x + 3y = 12 \end{cases}$$

12. Algebraically solve each system: (3 marks)

a) $\begin{cases} 6x + 8y = 5 \\ 10x - 8y = 51 \end{cases}$

b) $\begin{cases} 15x + 3y = 9 \\ 10x + 7y = -4 \end{cases}$ (3 marks)

c) $\begin{cases} \frac{1}{2}x - \frac{3}{2}y = 3 \\ \frac{1}{2}x + \frac{1}{2}y = 1 \end{cases}$ (4 marks)

13. Holy Spirit High School is selling tickets to its Spring Concert. Adult tickets cost $4 and student tickets cost $2.50. 900 tickets are sold and the school makes $2820.

a) Write a system of linear equations to represent this situation. (1 mark)

b) Algebraically determine how many adult and student tickets were sold. (3 marks)