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SYSTEMS OF EQUATIONS REVIEW

Essential Standard (8.EE.C.8.A): Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.
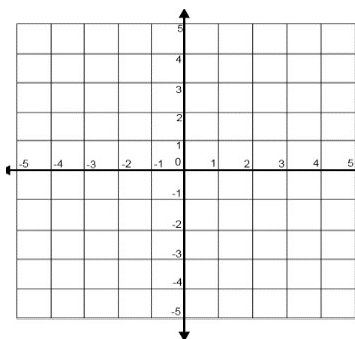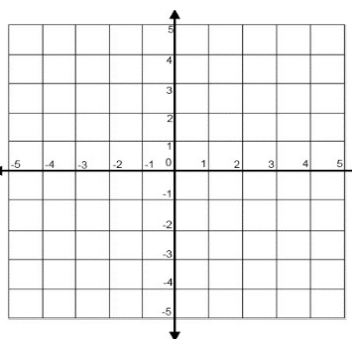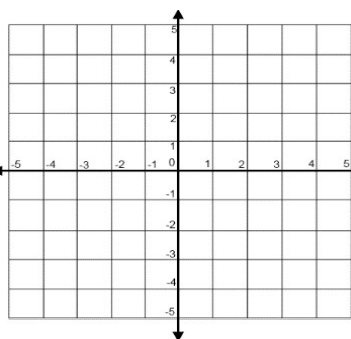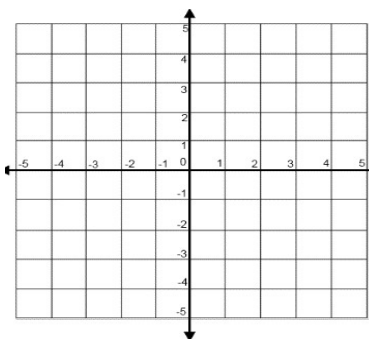
1-4: Solve by graphing. (hint: find m and b of each line first)

1. $\begin{cases} y = x - 3 \\ y = -x + 1 \end{cases}$

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

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

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

_____   _____   _____   _____

5. When two lines have the same slope and different y- intercepts, there is _____ solution.

6. When two lines have different slopes, there is _____ solution.

7. When two lines have the same slope and the same y- intercept, there is _____ solution.

8. If you were given the equation, $y = 4x - 6$, write an equation that would provide you with the following answers.
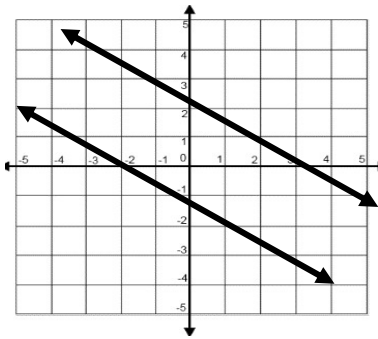
One Solution: _____ No Solution: _____ Infinite Solutions: _____

9. The ordered pair (8, 5) is the solution to which system of equations? **Circle all that apply. (Show work)**
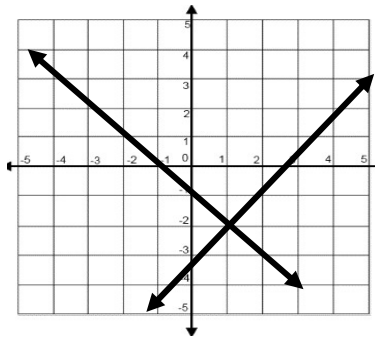
A. $\begin{cases} x = 8 \\ y = 5 \end{cases}$	B $\begin{cases} x - 4y = -12 \\ 2x - 3y = 1 \end{cases}$	C $\begin{cases} y = 2x \\ x + y = 9 \end{cases}$	D $\begin{cases} y = -2x + 21 \\ y = -2x - 10 \end{cases}$	E $\begin{cases} y = -x + 13 \\ 7x - 4y = 36 \end{cases}$

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10. Which of the following has no solution? _____ Infinite solutions? _____ Explain how you know.
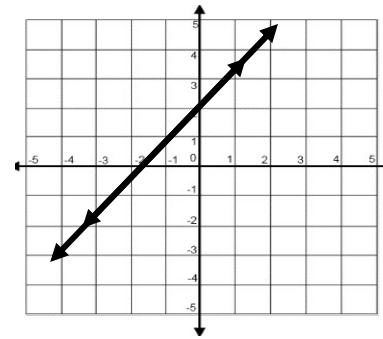
Graph A	Graph B	Graph C

11. Find the solution for the graph that you did NOT use in #10. _____

Essential Standard (8.EE.C.8.B): Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.

12. Solve by substitution or set equal.

a. $\begin{cases} y = 5x - 11 \\ y = -2x + 10 \end{cases}$

b. $\begin{cases} y = -3x + 17 \\ y = 4x - 18 \end{cases}$

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

d. $\begin{cases} x = -18 - 7y \\ 4x + 7y = -30 \end{cases}$
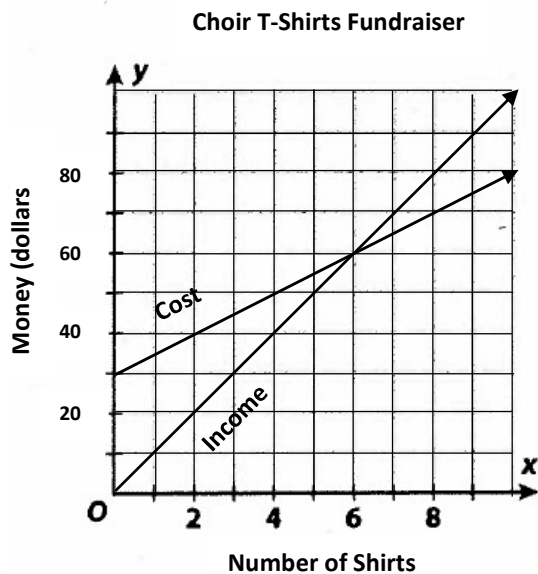
e. $\begin{cases} -6x + 2y = 4 \\ -3x + y = 2 \end{cases}$

f. $\begin{cases} x + 5y = 4 \\ 3x + 15y = -1 \end{cases}$

g. $\begin{cases} 8x + 2y = 13 \\ 4x + y = 11 \end{cases}$

h. $\begin{cases} 4x + 3y = 8 \\ x - 2y = 13 \end{cases}$

Essential Standard (8.EE.C.8.C): Solve real-world and mathematical problems leading to two linear equations in two variables.

13-16: Use the following graph which shows the cost and income of Choir Fundraiser.

Choir T-Shirts Fundraiser

Money (dollars)

Cost

Income

Number of Shirts

13. How much is the setup fee for the cost? _____

How do you know? _____

_____

14. What is the break-even point? _____

What is the cost and income at this point? _____

What is the profit at this point? _____

15. Determine the number of shirts for which the cost is greater than the income.

_____

16. State the number of shirts that must be sold for a profit to be made _____

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17-20: Jenny was selling Girl Scout Cookies. She sold 14 boxes for a total of $60. Shortbreads (x) sell for $4.00 each and Thin Mints (y) sell for $5.00 each. How many boxes of each did she sell?

17. Write 2 equations to represent this situation.
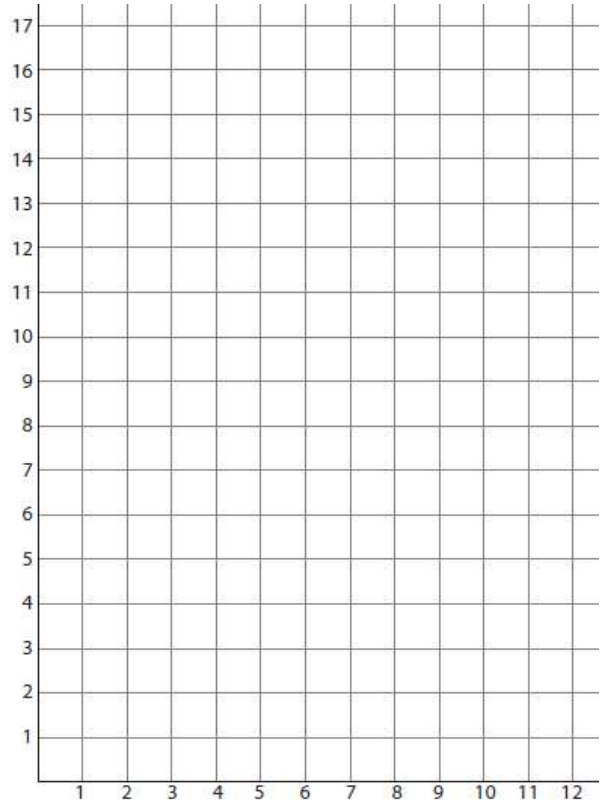
Equation for number of boxes: _____

Equation for cost: _____

18. Write both equations in slope- intercept form and graph

Equation 1: _____

Equation 2: _____

19. Solve using substitution.

Answer:

20. The ordered pair (___, ____) is the solution. What does it represent?

Answers:
1) (2,-1) **2)** (-3,-2) **3)** (3,1) **4)** No solution **5)** no **6)** one **7)** infinite **8)** Answers may vary
9) (a) (b) (e) **10)** A, C **11)** (1,-2) **12)** a. (3,4) b. (5,2) c. (2,0) d. (-4,-2) e. Inf solutions f. no solution g. no solution h. (5,-4)
13) $30, this is the y-intercept **14)** (6, 60), $60, $0 **15)** 0-5 shirts
16) More than 6 shirts **17)** x+y=14, 4x+5y=60 **18)** y=-x+14, y=-4/5x+12
19) (10,4)   **20)** Jenny sold 10 boxes of Shortbreads and 4 boxes of Thin Mints