Have out your graphing calculator!!

Solving Systems by Graphing

Warm Up

1. Determine the number of solutions for the following systems of equations. One, None, or Infinite

a) $y_1 = 3x - 1$ none m=3
$y_2 = 3x + 6$ m=3

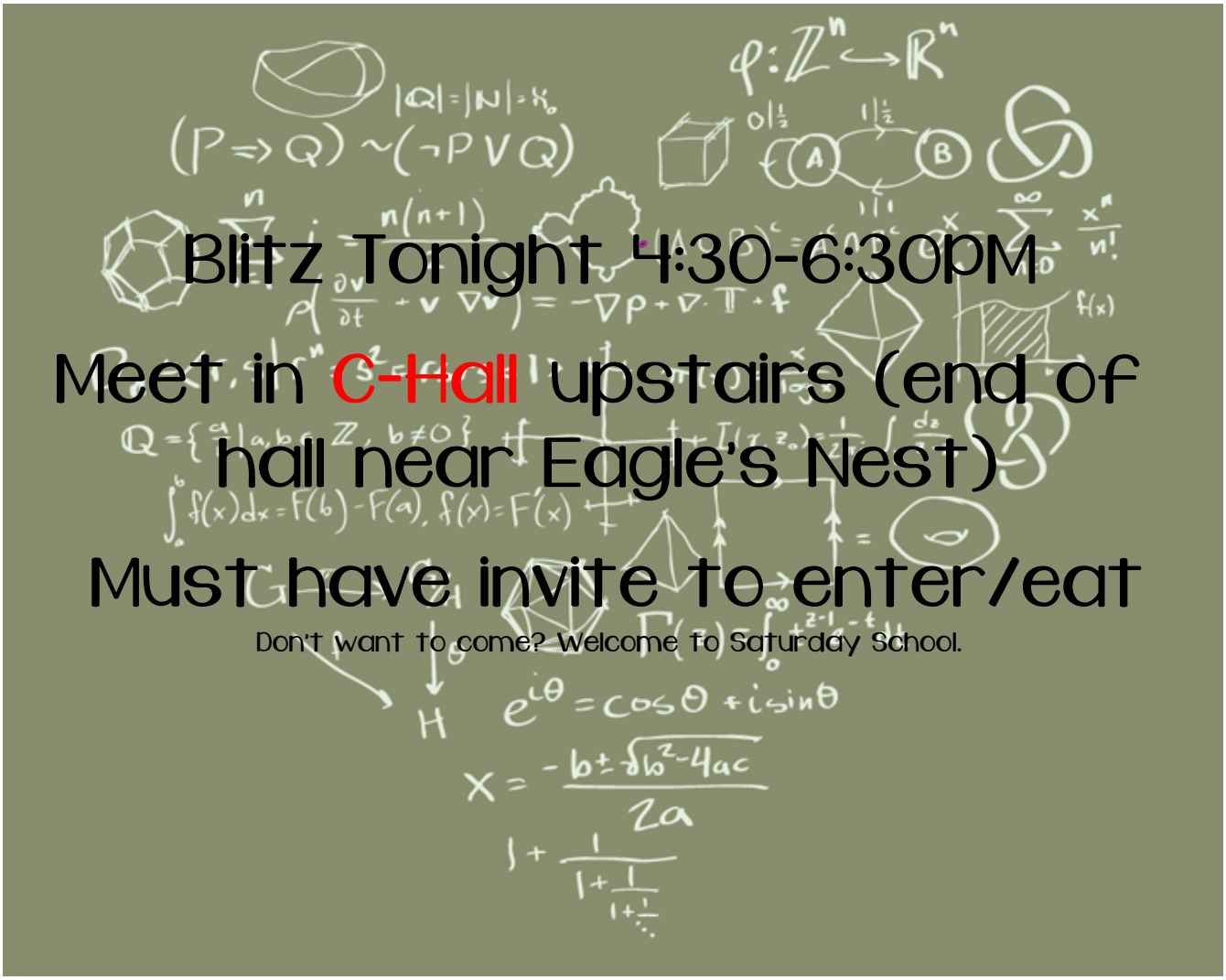
b) $y = 4x-7$
$y = 5x-7$

2. Which of the following represents the parent function of $y = 5x - 2$?

A. $y = x^2$
B. $y = x - 2$
C. $y = x$
D. $y = 5x - 2$

AGENDA

Warmup: see left
HW Check
Notes: Solve by Graphing p. 85
Hw: Practice (2 pages)


Blitz Tonight 4:30-6:30PM
Meet in C-Hall upstairs (end of hall near Eagle's Nest)
Must have invite to enter/eat
Don't want to come? Welcome to Saturday School.

HW Check

1. (2,3)
2. (-1,-2)
3. (1, -2)
4. (0,3)
5. 235 student, 123 non-student tickets
6. 7 Gala apples, 12 Granny Smith apples
7. Karrie is incorrect, she didn't distribute the negative to the 3.

Algebra I - Unit 6: Topic 2 – Solving Systems by Elimination Day 2

Practice – Solving Systems by Elimination Day 2 **pp 397-403**

Name _____ Date _____ Period _____

Solve each system by elimination.

1. $5x - 2y = 4$
   $3x + y = 9$

2. $3x - 5y = 7$
   $5x - 2y = -1$

3. $3x - 5y = 13$
   $x - 2y = 5$

4. $4x + 3y = 9$
   $3x + 4y = 12$

5. Three hundred fifty-eight tickets were sold to the school basketball game on Friday. Student tickets were $1.50 and non-student tickets were $3.25. The school made $752.25. How many student and non-student tickets were sold?

Set up and solve the system by elimination.

6. Carl bought 19 apples of 2 different varieties to make a pie. The total cost of the apples was $5.10. Granny Smith apples cost $0.25 each and Gala apples cost $0.30 each. How many of each type of apple did Carl buy?

7. Karrie and Amy were shoulder partners. They both worked the same problem, but got two different answers. Who is incorrect and explain the error they made?

Karrie:

$x + y = -3$ →
$3x + y = 3$ →

$x + y = -3$
$-(3x + y = 3)$
$-2x = 0$
$x = 0$

When she solved for x, Karrie got $x = 0$

Amy:

$x + y = -3$ →
$3x + y = 3$ →

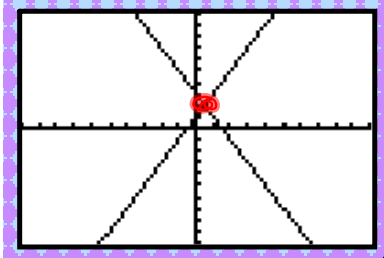
$x + y = -3$
$-(3x + y = 3)$
$-2x = -6$
$x = 3$

When she solved for x, Amy got x= 3

p.85

Recall...

Where is the solution here?



SOLUTION

is a point (x,y) where the lines intersect.

Does a system of equations always have a solution? Why or why not?

NO. Parallel lines don't intersect.

Use the table on the calculator to determine if the ordered pair is a solution to the system of equations. Check in the table using a calculator.

1. **Solution**

(5, 2) x y

Solved for y=

$y_1 = \frac{2}{5}x$ $y_2 = 3x - 13$

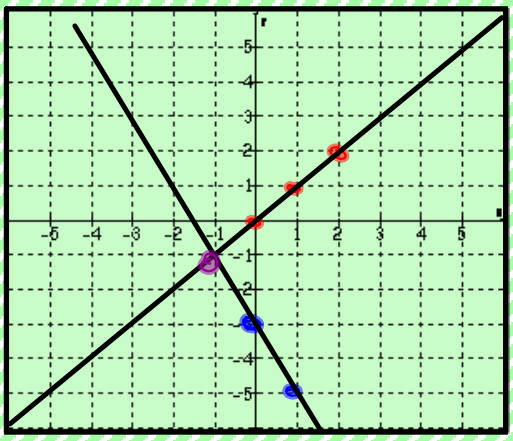
x	y1	y2
3	6/5	−4
4	8/5	−1
5	2	2
6	12/5	5

yes

$2 \stackrel{?}{=} \frac{2}{5}(5)$

Solve the systems BY GRAPHING!

2.



$y_1 = x$ m = 1, b = 0

$y_2 = -2x - 3$ m = -2, b = -3

x	y1	y2

X	Y1	Y2
-2	-2	1
-1	-1	-1
0	0	-3
1	1	-5
2	2	-7
3	3	-9
4	4	-11

X= -2

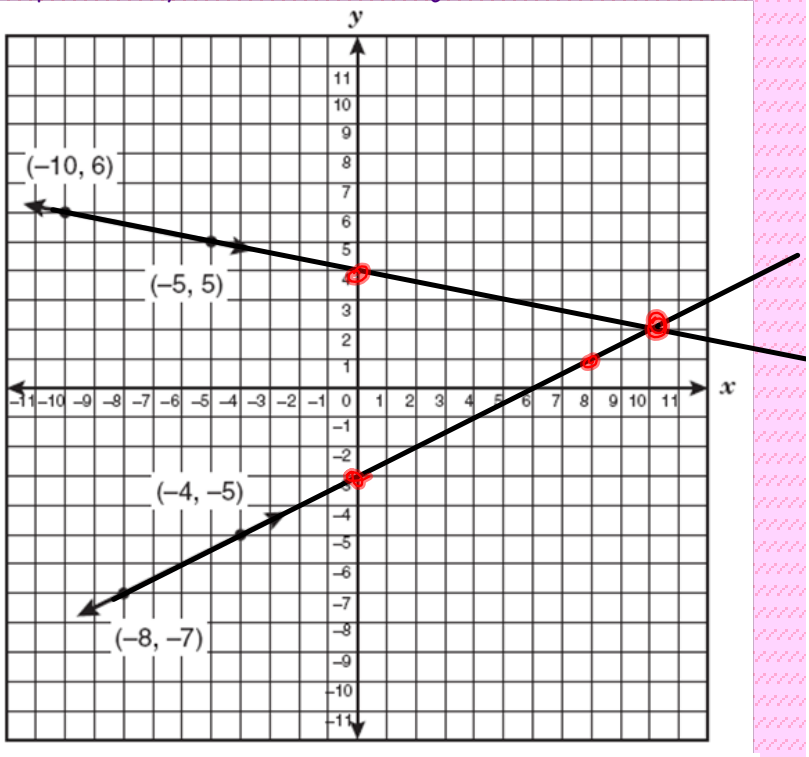
(−1, −1)

SOLUTION: _____

STEPS!

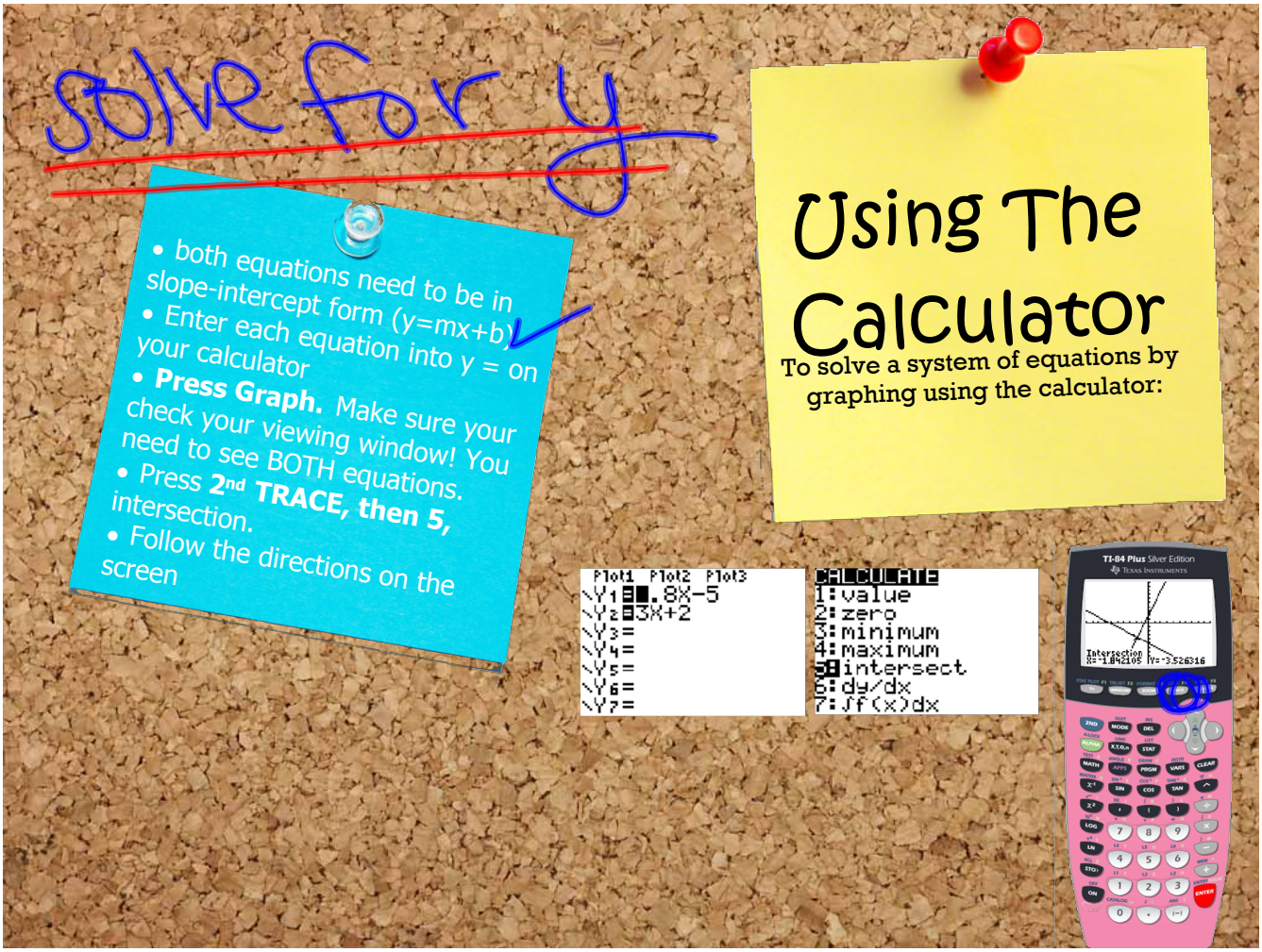
extend the line (w/ straight edge)

The graph of a system of linear equations is shown below



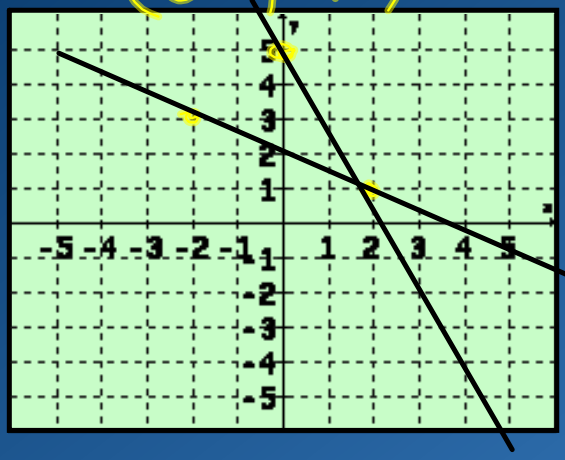
Which of the following is the solution to this system of linear equations?

~~A~~ (0, 4) ~~B~~ (8, 1) ~~C~~ (0, -3) D (10, 2)


solve for y
• both equations need to be in slope-intercept form (y=mx+b)
• Enter each equation into y = on your calculator
• **Press Graph.** Make sure your check your viewing window! You need to see BOTH equations.
• Press **2nd TRACE, then 5,** intersection.
• Follow the directions on the screen
Using The Calculator
To solve a system of equations by graphing using the calculator:
Plot1 Plot2 Plot3
Y1=.8X-5
Y2=3X+2
Y3=
Y4=
Y5=
Y6=
Y7=
CALCULATE
1:value
2:zero
3:minimum
4:maximum
5:intersect
6:dy/dx
7:∫f(x)dx
TI-84 Plus Silver Edition
Texas Instruments

Find the solution set to the following equations. If there is not a solution, write No Solution

4.



(2, 1)

CALCULATOR y=

$x + 2y = 4$

$2x + y = 5$

$x+2y=4$

$-x \quad -x$

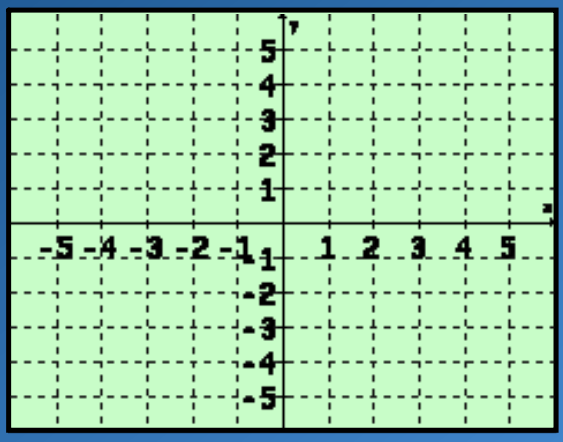
$\frac{2y}{2} = \frac{-x+4}{2}$

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

$-2x \quad -2x$

$y = -2x+5$

6.



$3x - y = 2$

$12x - 4y = 8$

7.

The RHS soccer team is selling snapback hats as a fundraiser. They contacted two companies. Hats Off charges a $50 design fee and $5 per hat. Top Stuff charges a $25 design fee and $6 per hat.

A) Write a system of equations that represents each company!

Let Statement

Let hats be h.

Let total cost be c.

HATS OFF $c = 50 + 5h$

TOP STUFF $c = 25 + 6h$

B) For how many hats will the cost be the same? What is the cost?

25 hats

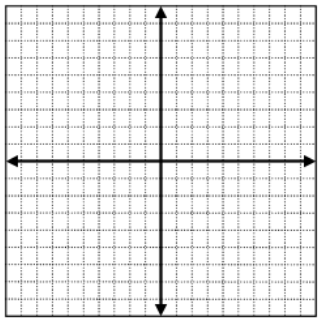
$175

C) Explain when it is cheaper for the soccer team to use Top Stuff and when it is cheaper to use Hats Off.

SOLVING BY GRAPHING

let's practice solving by graphing. don't forget to verify!!

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

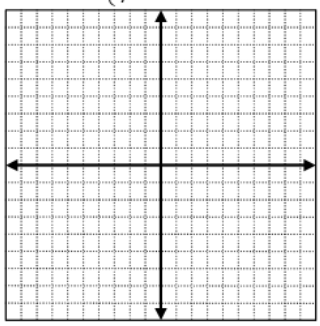


Intersection: (,)

Solution: x = y =

Verify algebraically

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

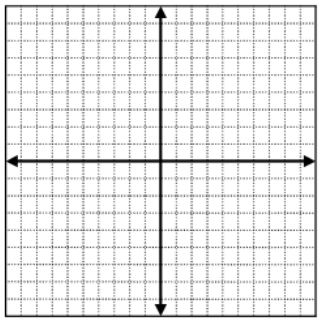


Intersection: (,)

Solution: x = y =

Verify algebraically

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

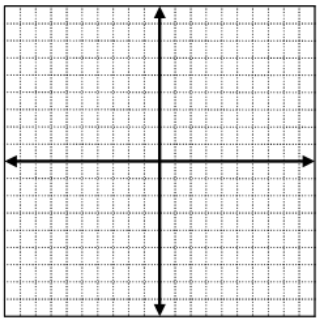


Intersection: (,)

Solution: x = y =

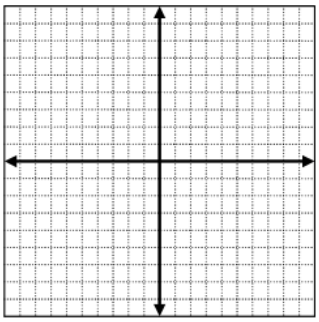
Verify algebraically

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



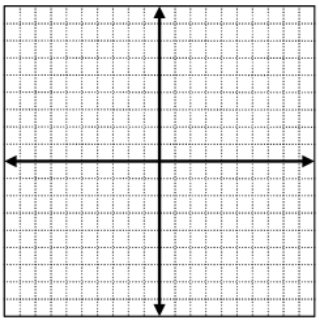
solution: x = y =

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



solution: x = y =

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



solution: x = y =

Algebra I - Unit 6: Topic 2 – Solving Systems by Graphing

13. Shelby solved the following system of equations and reported that $x = 4$ and $y = 6$. Solve the system of equations by graphing. Is she correct? Why or why not. Use the table to justify your answer.

$$y - x = 2$$
$$4y = 8x - 8$$

x	y_1	y_2

14. Coach Sureshot needs to hire an electrician to do some repair work at his new home. A-1 Electricians charge $30 for a service call plus $45 per hour while Excellent Electricians charge $40 per hour plus a $55 service call.

A) What equation could represent the cost for hiring A-1 Electricians? _____
B) What equation could represent the cost for hiring Excellent Electricians? _____

If the electricians only work for 2 hours, how much will each company charge him?
C) A-1 Electricians will charge _____
D) Excellent Electricians will charge _____

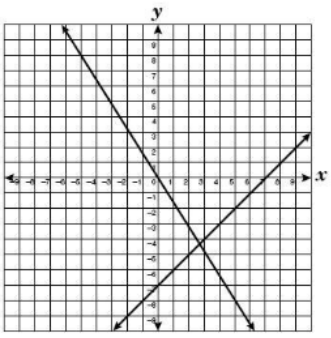
If the electricians have to work for 8 hours, how much will each company charge Coach Sureshot?
E) A-1 Electricians will charge _____
F) Excellent Electricians will charge _____

When will both companies charge the same amount?
G) For _____ hours, both companies would charge _____.

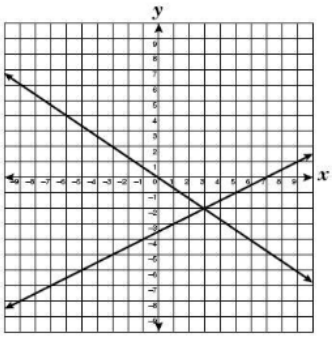
15. Which graph best represents a solution to this system of equations?

$$2x - 3y = 0$$
$$x + 2y = -7$$

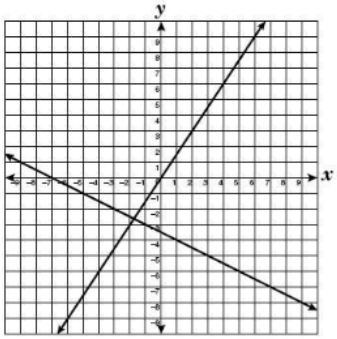
A



C



B



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