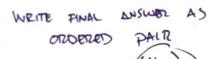
SOLVING SYSTEMS OF EQUATIONS BY ELIMINATION

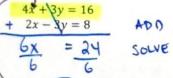
USE THE ELIMINATION METHOD FOR SOLVING SYSTEMS WHEN YOU DON'T HAVE A GRAPH

STEPS FOR SOLVING BY ELIMINATION

- 1. LINE UP THE VARIABLES
- 2. ADD THE EQUATIONS.
- 3. SOLVE FOR THE FIRST VARIABLE (X OR Y)
- 4. <u>Substitute</u> the variable from *STEP 3* and solve for the other variable.
- 5. CHECK: PLUG X AND Y INTO EQUATION.



EXAMPLE 1: THE "Y" CANCELS OUT



BACK INTO DEIGINAL EQUATION
TO FIND THE OTHER VARIABLE

4(4)+3y=16 ORIGINAL EQUATION

4(4)+3y=16 DWG(ED-IN X VALUE

16+3y=16 DISTRIBUTE

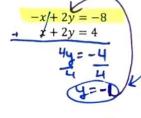
NOW SOME THE 2-STEP

SQUATION

ORDERED DAIR (6,-1)

ADD

EXAMPLE 2: THE "X" CANCELS OUT

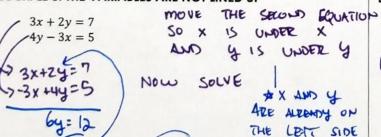


NOW YOU HAVE Y. DLV4
INTO DEIGHDER FOUNTION TO
PIND X

-x+2y=-8 original equation -x+2(-1)=-8 pure in y -x-2=-8 distribute +2 +2 solve the 2-sep equation -x=-6 -1 -1

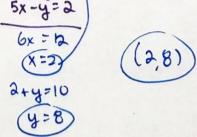
EXAMPLE 3: THE VARIABLES ARE NOT LINED UP

3x=3 (x=1



3x+2(2)=7

EXAMPLE 4: THE VARIABLES ARE ON THE WRONG SIDE OF THE EQUAL THE \times 15 On the RIGHT SIDE WO IT NEEDS TO BE ON THE LEFT. DO THE CIPALITE AND MOVE IT



IF YOU DO NOT HAVE VARIABLES THAT CANCEL OUT, YOU WILL NEED TO MULTIPLY TO GET TERMS THAT WILL CANCEL

FOR EXAMPLE: IF YOU WANT THE X TERM TO BE -4 MULTIPLY THE THE ENTIRE EQUATION (EVERY TERM)

$$-4 (3y+x=-6)$$

-12y -4x=24

HOW TO FIGURE OUT WHICH NUMBER(S) TO MULTIPLY:

- 1) PICK A VARIABLE (X OR Y)
- 2) MULTIPLY EACH EQUATION BY THE OPPOSITE COEFFICIENT

If terms are positive/negative then your multiplication terms are BOTH POSITIVE

If terms are both the same sign then you multiplication terms need to be ONE POSITIVE and ONE NEGATIVE

TRY CANCELLY OUT Y USE I AND 3, the me y variables NOW YS

EXAMPLE 5: VARIABLES ARE POSITIVE/NEGATIVE

$$\begin{array}{ccc}
3 & (3x + y = 8) & \rightarrow & 2x + 3y = 20 \\
1 & (7x - 3y = 8) & & 7x - 3y = 8 \\
\hline
16x & = 32 \\
\hline
(x = 7)
\end{array}$$

TRY CONCRING OUT XS, USE 5 AWS 3. BUT ONE MUST BE NECHTIVE SO SOMETHING CLUCAS

EXAMPLE 6: BOTH VARIABLES ARE SAME SIGN.

$$-\frac{3}{5}(5x + 2y = -10) \rightarrow -15x - 6y = 30$$

$$5(3x + 6y = 66) \rightarrow 15x + 30y = 330$$
Cand

cance

WHITE BOARD PRACTICE!

$$3x - 9y = -30$$
$$-3x - 4y = 4$$

$$4x + 3y = -13$$
$$7x - 2y = -1$$

$$-6x = 3y - 9$$
$$-5x - 3y = -4$$

ance

OUT!

$$-8x + 5y = 12$$
$$x + 4y = 17$$

$$-3x + 30 = 8y$$
$$-8y - 8x = 0$$

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

THE CALCULTOR!

ax + by = c. MAKE SURE YOUR EQUATION IS LINED UP AS ax + by = c

(MEANING THE X AND Y ARE ON THE LEFT, AND THE CONSTANT NUMBER IS ON THE RIGHT

- . GO TO [2ND] SYS-SOLVE (THE TAN KEY)
- SELECT OPTION 1 2X2 LIN EQUS
- TYPE IN THE COEFFICIENT FOR THE FIRST X, PRESS ENTER UNTIL YOU GET TO THE PLACE IN FRONT OF Y AND TYPE IN THAT COEFFICIENT. KEEP TYPING IN ALL NUMBERS OF YOUR EQUATION
- · GO TO SOLVE AND PRESS ENTER... TA-DA!
- . IF YOU WANT TO SWITCH YOUR FRACTION ANSWER INTO A DECIMAL, PRESS THE 'CHANGER' BUTTON RIGHT ABOVE THE ENTER KEY