Do Now: #1- 4

Name _____

Using your graphing calculator
ALPHA 200 M to input matrix

Please answer all questions and show all work.

Given $A = \begin{bmatrix} 2 & -4 \\ 1 & 3 \end{bmatrix}$ $B = \begin{bmatrix} 4 & -1 \\ 2 & 0 \end{bmatrix}$ $C = \begin{bmatrix} 4 \\ 3 \end{bmatrix}$ $D = \begin{bmatrix} 3 & 1 \end{bmatrix}$ $E = \begin{bmatrix} -3 & 2 & 0 \\ 1 & -1 & -2 \end{bmatrix}$

find determinant → 2nd X⁻¹ → MATH 1:det( )

Calculate. If not possible, put undefined:

1) A + B $\begin{bmatrix} 6 & -5 \\ 3 & 3 \end{bmatrix}$

2) 3B $\begin{bmatrix} 12 & -3 \\ 6 & 0 \end{bmatrix}$

3) AC $\begin{bmatrix} -4 \\ 13 \end{bmatrix}$

4) $\begin{vmatrix} 2 & -4 \\ 1 & 3 \end{vmatrix} = 10$

5) AE

6) AD

7) B + D

8) B – 2A

5b) A^{-1} → put matrix A in and use X^{-1} $\begin{bmatrix} 2 & -4 \\ 1 & 3 \end{bmatrix}^{-1}$

Perform the following row operations beginning with matrix A and using your answer to each problem as the matrix for the next.

9) $-2R_2 + R_1 \rightarrow R_1$

10) $R_1 \leftrightarrow R_2$

11) $-\frac{1}{10} R_2$

_____ 12) Given the matrix $\begin{bmatrix} 1 & 6 & 5 \\ 2 & 3 & 1 \\ 0 & 2 & 4 \end{bmatrix}$ calculate the determinant.

Show your work.

solve 2nd X^{-1} → matrix men → math B:rref $\begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & 3 \\ 0 & 0 & 1 & 2 \end{bmatrix}$ z=2 y=3 x=1

_____ 13) Given that the augmented matrix $\left[\begin{array}{ccc|c} 1 & 3 & -1 & 8 \\ 0 & 3 & 1 & 11 \\ 0 & 0 & 4 & 8 \end{array}\right]$ represents a system of equations, give the solution to the system of equations as an ordered triplet.

14. a. Solve the following system algebraically:
    b. Solve the following system, using matrices:

$x - 2y + 3z = 4$
$2x + y - 4z = 3$
$-3x + 4y - z = -2$

$\left[\begin{array}{ccc|c} 1 & -2 & 3 & 4 \\ 2 & 1 & -4 & 3 \\ -3 & 4 & -1 & -2 \end{array}\right]$ $\begin{bmatrix} 1 & 0 & 0 & 4 \\ 0 & 1 & 0 & 3 \\ 0 & 0 & 1 & 2 \end{bmatrix}$ z=2 y=3 x=4

Solve the following using matrices:

15. $2x - 3y = -4$
    $5x + 7y = 1$

16. $5x + 2y - z = -7$
    $x - 2y + 2z = 0$
    $3y + z = 17$

17. $-2x + 3y - z = -1$
    $x - 2y + z = 3$

18. $-2x + 3y - z = 4$
    $2x - 3y + z = 1$

19. $x + y - z = 0$
    $3x - y + 3z = -2$
    $x + 2y - 3z = -1$

Homework 03-04

p. 646 # 13, 14, 15, 16

(13) $\begin{bmatrix} 3 & 4 \\ 5 & 3 \end{bmatrix}$ det = 9 − 20 = −11

$\begin{bmatrix} -2 & 4 \\ 4 & 3 \end{bmatrix}$ det = −6 − 16 = −22 x value = $-22/-11 = 2$

$\begin{bmatrix} 3 & -2 \\ 5 & 4 \end{bmatrix}$ det = 12 + 10 = 22 y value = $22/-11 = -2$

(14) $\begin{bmatrix} -.4 & .8 \\ .2 & .3 \end{bmatrix}$ det = −.28

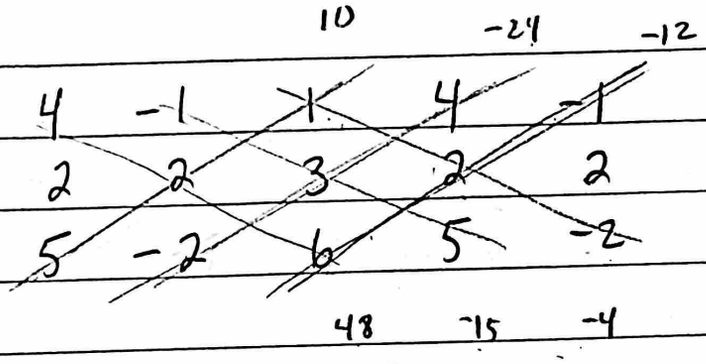
$\begin{bmatrix} 1.6 & .8 \\ 2.2 & .3 \end{bmatrix}$ det = −1.28 x value = $\frac{-1.28}{-.28} = \frac{32}{7}$

$\begin{bmatrix} -.4 & 1.6 \\ .2 & 2.2 \end{bmatrix}$ det = −1.2 y value = $\frac{-1.2}{-.28} = \frac{30}{7}$

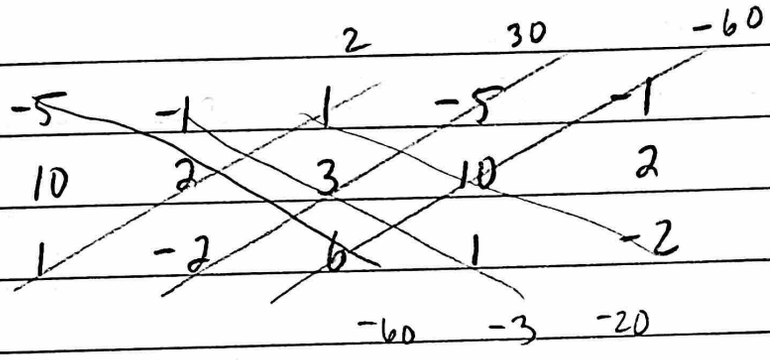
$-10+24$

$14+12=26$

(15)

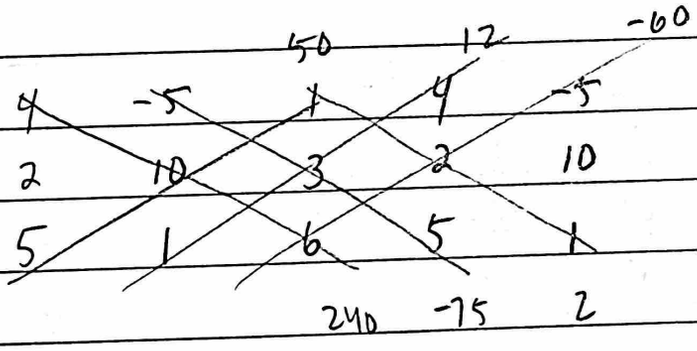


$det = 29 + (-10+24+12) = 55$



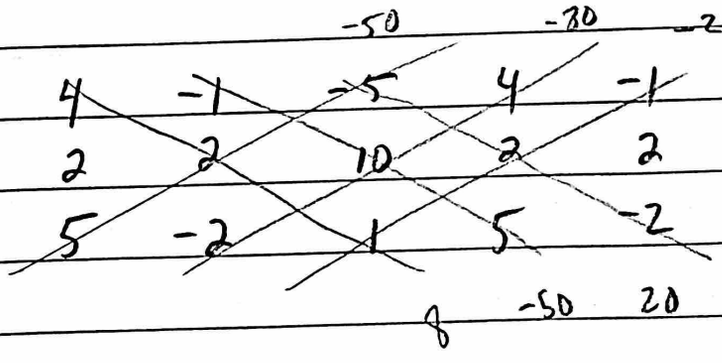
$det = -83 + (60-30-2) = -55$

$x\ value = \frac{-55}{55} = -1$



$det = 167 + (-50-12+60) = 165$

$y\ value = \frac{165}{55} = 3$

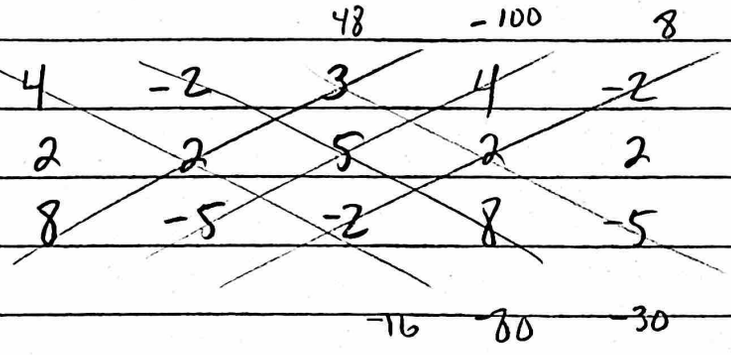


$det = -22 + (50+80+2) = 110$

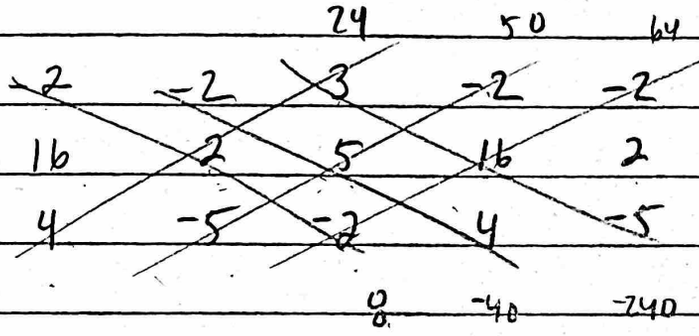
$z\ value = \frac{110}{55} = 2$

$(5, 3, -2)$

(16)

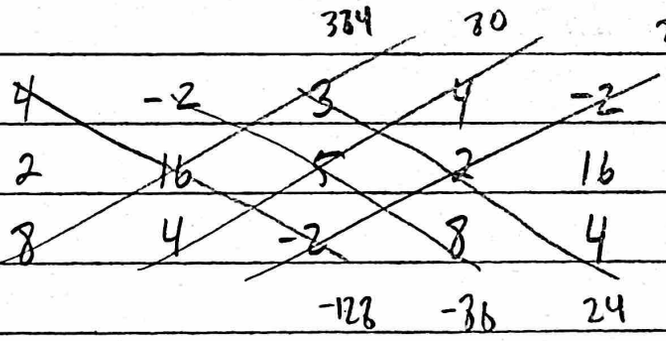


$det = -126 + (-48 + 100 - 8) = -82$



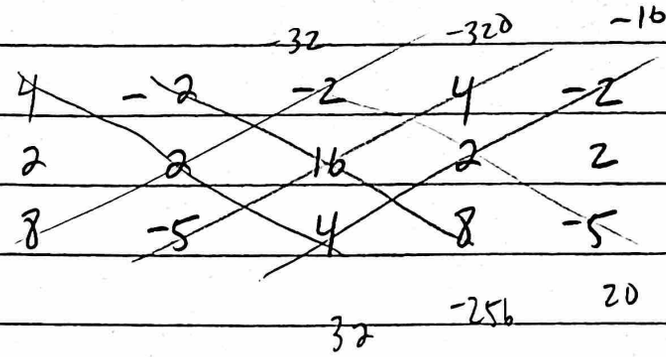
$det = -272 + (-24 - 50 - 64) = -410$

$x\ value = \frac{-410}{-82} = 5$



$det = -184 + (-384 - 80 - 8) = -656$

$y\ value = \frac{-656}{-82} = 8$



$det = -204 + (32 + 320 + 16) = 164$

$z\ value = \frac{164}{-82} = -2$