Trigonometry (Last Packet)

Day	Date	Video	Assignment Due	Is it done?
Monday	5/18/2020	NO CLASS		
Tuesday	5/19/2020	9.2		
Wednesday	5/20/2020	9.3	276: 1-8	
Thursday	5/21/2020	9.4	280: 1-8	
Friday	5/22/2020		285: 7-12	
Monday	5/25/2020	NO SCHOOL		
Tuesday	5/26/2020	PT	practice test	
Wednesday	5/27/2020		take test on chapter 9 - will send by email that day	
Thursday	5/28/2020	Matrix - Solve		
Friday	5/29/2020	Determinants	xeroxed copy of page 186: 1-10	
Monday	6/1/2020	NO CLASS		
Tuesday	6/2/2020	add, sub, mult	xeroxed copy of pages 191-192: 1-8, 15-20, 27-32	
Wednesday	6/3/2020	con, dep	matrix sheet 3	
Thursday	6/4/2020		matrix sheet 7	
Friday	6/5/2020	nothing - there would have been no math this day		
How many total did you do:				

Zoom session happen Tues/Thurs at 12:00 for those needing any help

NOTE: Chapter 9 material was already posted online a long time ago...we just never got to it until now

SOLVING SYSTEMS of EQUATIONS
(MORE THAN 1 EQ, MORE THAN 1 VAR)

① GRAPHICALLY: FIND CROSSING POINTS
② SUBSTITUTION: GET x=, PLUG INTO OTHER
BEST * ③ MULTIPLICATION-ADDITION: ADD MULTIPLES OF 1 OR TO OTHER

$$\begin{aligned} x+y+z &= 4 \\ x-2y-z &= 1 \\ 2x+y-2z &= -1 \end{aligned}$$

$$\begin{aligned} x+y+z &= 4 \\ -3y-2z &= -3 \\ -3y-4z &= -9 \end{aligned}$$

$$\begin{aligned} x+y+z &= 4 \\ -3y-2z &= -3 \\ -2z &= -6 \end{aligned}$$

$$\begin{aligned} x &= 2 \\ y &= -1 \\ z &= 3 \end{aligned}$$

MATRIX (MATRICES) A RECTANGULAR ARRAY of #'s

TO SOLVE, SWAP ROWS
MULTIPLY / DIVIDE A ROW BY A # } GET 1's ON TOP LEFT
ADD A MULTIPLE OF 1 ROW TO ANOTHER

$$\left[\begin{array}{ccc|c} 1 & 1 & 1 & 4 \\ 1 & -2 & -1 & 1 \\ 2 & -1 & -2 & -1 \end{array}\right] \quad \left[\begin{array}{ccc|c} 1 & 1 & 1 & 4 \\ 0 & -3 & -2 & -3 \\ 0 & -3 & -4 & -9 \end{array}\right] \quad \left[\begin{array}{ccc|c} 1 & 1 & 1 & 4 \\ 0 & -3 & -2 & -3 \\ 0 & 0 & -2 & -6 \end{array}\right] \quad \begin{aligned} x &= 2 \\ y &= -1 \\ z &= 3 \end{aligned}$$

$$\begin{aligned} x+3y &= 7 \\ 2x+5y &= 12 \end{aligned} \quad \left[\begin{array}{cc|c} 1 & 3 & 7 \\ 2 & 5 & 12 \end{array}\right] \quad \left[\begin{array}{cc|c} 1 & 3 & 7 \\ 0 & -1 & -2 \end{array}\right] \quad \begin{aligned} x &= 1 \\ y &= 2 \end{aligned}$$

$$\begin{aligned} 2x+8y &= 5 \\ 3x+5y &= 4 \end{aligned} \quad \left[\begin{array}{cc|c} 2 & 8 & 5 \\ 3 & 5 & 4 \end{array}\right] \quad \left[\begin{array}{cc|c} 1 & 4 & 2.5 \\ 3 & 5 & 4 \end{array}\right] \quad \left[\begin{array}{cc|c} 1 & 4 & 2.5 \\ 0 & -7 & -3.5 \end{array}\right] \quad \begin{aligned} x &= .5 \\ y &= .5 \end{aligned}$$

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

$$\left[\begin{array}{ccc|c} 1 & -2 & 3 & 4 \\ 2 & -1 & 1 & -1 \\ 4 & 1 & 1 & 1 \end{array}\right] \qquad \left[\begin{array}{ccc|c} 1 & -2 & 3 & 4 \\ 0 & 3 & -5 & -9 \\ 0 & 9 & -11 & -15 \end{array}\right]$$

$$\left[\begin{array}{ccc|c} 1 & -2 & 3 & 4 \\ 0 & 3 & -5 & -9 \\ 0 & 0 & 4 & 12 \end{array}\right] \qquad \begin{array}{l} x = -1 \\ y = 2 \\ z = 3 \end{array}$$

186: 1-10

Note in the preceding that our goal was to get the matrix in the form where there are just 0's below the main diagonal, formed by a, e, and h. Then we put the variables back and complete the solution.

$$\begin{bmatrix} a & b & c & d \\ 0 & e & f & g \\ 0 & 0 & h & k \end{bmatrix}$$

TRY THIS Solve, using matrices.

1. $5x - 2y = -44$
   $2x + 5y = -6$

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

4–6

Exercises

Solve, using matrices.

(1.5, 2.5) 1. $4x + 2y = 11$
$3x - y = 2$

2. $3x - 3y = -6$
$9x - 2y = 3$ (1, 3)

(.5, 1.5) 3. $5x + 2 = 3y$
$4x + 2y - 5 = 0$

4. $3x + 3y - 2 = 0$
$2y = -1 + 5x$ $(\frac{1}{3}, \frac{1}{3})$

(3, -2) 5. $3x + y = 7$
$x + y = 1$

6. $2x + y = 0$
$x - 5y = -11$ (-1, 2)

(-1, 2, -2) 7. $x + 2y - 3z = 9$
$2x - y + 2z = -8$
$3x - y - 4z = 3$

8. $x - y + 2z = 0$
$x - 2y + 3z = -1$
$2x - 2y + z = -3$ (0, 2, 1)

(1.5, -4, 3) 9. $4x - y - 3z = 1$
$8x + y - z = 5$
$2x + y + 2z = 5$

10. $3x + 2y + 2z = 3$
$x + 2y - z = 5$
$2x - 4y + z = 0$ (2, .5, -2)

Extension

Solve, using matrices.

11. $0.3x + 0.2y = -0.9$
$0.2x - 0.3y = -0.6$

12. $0.2x - 0.3y = 0.3$
$0.4x + 0.6y = -0.2$

13. $2w - 2x - 2y + 2z = 10$
$w + x + y + z = -5$
$3w + x - y + 4z = -2$
$w + 3x - 2y + 2z = -6$

14. $w - 2x + 3y - z = 8$
$w - x - y + z = 4$
$w + 2x + y + z = 22$
$w - x + y + z = 14$

TRIG

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186 : 1-10

A MATRIX of m ROWS, n COLUMNS IS $m \times n$

IF $m = n$, IT IS CALLED A SQUARE MATRIX

EVERY SQUARE MATRIX HAS A # ASSOCIATED WITH IT : DETERMINANT

DETERMINANT OF $\begin{bmatrix} a & c \\ b & d \end{bmatrix} = \begin{vmatrix} a & c \\ b & d \end{vmatrix} = ad-bc$

$\begin{vmatrix} 1 & 5 \\ 6 & -3 \end{vmatrix} = -3-30 = -33$

$\begin{vmatrix} 3 & 4 \\ 5 & -7 \end{vmatrix} = -21-20 = -41$

DET of 3x3 : LOTS of CHOICES (1 BASIC)

$$\begin{vmatrix} -1 & 0 & 1 \\ -5 & 1 & -1 \\ 4 & 8 & 1 \end{vmatrix} = -1 \cdot \begin{vmatrix} 1 & -1 \\ 8 & 1 \end{vmatrix} - -5 \begin{vmatrix} 0 & 1 \\ 8 & 1 \end{vmatrix} + 4 \begin{vmatrix} 0 & 1 \\ 1 & -1 \end{vmatrix}$$

OR

$$-1 \begin{vmatrix} 1 & -1 \\ 8 & 1 \end{vmatrix} + 0 \begin{vmatrix} 5 & -1 \\ 4 & 1 \end{vmatrix} + 1 \begin{vmatrix} -5 & 1 \\ 4 & 8 \end{vmatrix}$$

$$\begin{vmatrix} + & - & + \\ - & + & - \\ + & - & + \end{vmatrix}$$

$-1(9) + 0 + (-44) = -53$

$$\begin{vmatrix} -5 & 0 & 0 \\ 4 & 2 & 0 \\ -3 & 5 & -6 \end{vmatrix} = -5 \begin{vmatrix} 2 & 0 \\ 5 & -6 \end{vmatrix} = (60)$$

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

$$2 \cdot 2 - 4 \cdot 12 + 3 \cdot 6$$

$$4 + 48 + 18 = (93)$$

191 1-8, 15-20, 27-32

$$D = \begin{vmatrix} 1 & -3 & 7 \\ 1 & 1 & 1 \\ 1 & -2 & 3 \end{vmatrix} = -10 \qquad D_x = \begin{vmatrix} 13 & -3 & 7 \\ 1 & 1 & 1 \\ 4 & -2 & 3 \end{vmatrix} = 20$$

$$D_y = \begin{vmatrix} 1 & 13 & 7 \\ 1 & 1 & 1 \\ 1 & 4 & 3 \end{vmatrix} = -6 \qquad D_z = \begin{vmatrix} 1 & -3 & 13 \\ 1 & 1 & 1 \\ 1 & -2 & 4 \end{vmatrix} = -24$$

$$x = \frac{D_x}{D} = \frac{20}{-10} = -2,\ y = \frac{D_y}{D} = \frac{-6}{-10} = \frac{3}{5},\ z = \frac{D_z}{D} = \frac{-24}{-10} = \frac{12}{5}$$

The solution is $(-2, \frac{3}{5}, \frac{12}{5})$. In practice, it is not necessary to evaluate D_z. When we have found values for x and y we can substitute them into one of the equations and find z.

TRY THIS Solve, using Cramer's Rule.

9. $x - 3y - 7z = 6$
   $2x + 3y + z = 9$
   $4x + y = 7$

4–7

Exercises

Evaluate.

1. $\begin{vmatrix} 2 & 7 \\ 1 & 5 \end{vmatrix}$ 2. $\begin{vmatrix} 3 & 2 \\ 2 & -3 \end{vmatrix}$ 3. $\begin{vmatrix} 6 & -9 \\ 2 & 3 \end{vmatrix}$ 4. $\begin{vmatrix} 3 & 2 \\ -7 & 5 \end{vmatrix}$

5. $\begin{vmatrix} 1.3 & 2.7 \\ 4.2 & 0.8 \end{vmatrix}$ 6. $\begin{vmatrix} 2.4 & 1.6 \\ 0.9 & 1.8 \end{vmatrix}$ 7. $\begin{vmatrix} -7 & -7 \\ 3 & 3 \end{vmatrix}$ 8. $\begin{vmatrix} 8 & -1 \\ 8 & -1 \end{vmatrix}$

Solve, using Cramer's Rule.

9. $3x - 4y = 6$
   $5x + 9y = 10$

10. $5x + 8y = 1$
    $3x + 7y = 5$

11. $2x - 2y = 2$
    $6x - 5y = 1$

12. $5x - 6y = 8$
    $2x - 5y = -2$

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

14. $-2x + 4y = 3$
    $3x - 7y = 1$

Evaluate.

15. $\begin{vmatrix} 0 & 2 & 0 \\ 3 & -1 & 1 \\ 1 & -2 & 2 \end{vmatrix}$ 16. $\begin{vmatrix} 3 & 0 & -2 \\ 5 & 1 & 2 \\ 2 & 0 & -1 \end{vmatrix}$ 17. $\begin{vmatrix} -1 & -2 & -3 \\ 3 & 4 & 2 \\ 0 & 1 & 2 \end{vmatrix}$

18. $\begin{vmatrix} 1 & 2 & 2 \\ 2 & 1 & 0 \\ 3 & 3 & 1 \end{vmatrix}$ 19. $\begin{vmatrix} 3 & 2 & 2 \\ -2 & 1 & 4 \\ 4 & -3 & 3 \end{vmatrix}$ 20. $\begin{vmatrix} 2 & -1 & 1 \\ 1 & 2 & -1 \\ 3 & 4 & -3 \end{vmatrix}$

Solve, using Cramer's Rule.

21. $2x - 3y + 5z = 27$
$x + 2y - z = -4$
$5x - y + 4z = 27$

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

23. $r - 2s + 3t = 6$
$2r - s - t = -3$
$r + s + t = 6$

24. $a - 3c = 6$
$b + 2c = 2$
$7a - 3b - 5c = 14$

25. $3x + 2y - z = 4$
$3x - 2y + z = 5$
$4x - 5y - z = -1$

26. $3x - y + 2z = 1$
$x - y + 2z = 3$
$-2x + 3y + z = 1$

Extension

Evaluate.

27. $\begin{vmatrix} x & 4 \\ x & x^2 \end{vmatrix}$ 28. $\begin{vmatrix} y^2 & -2 \\ y & 3 \end{vmatrix}$ 29. $\begin{vmatrix} z & -3 \\ z^2 & 1 \end{vmatrix}$

Solve for x.

30. $\begin{vmatrix} 4 & 2 \\ 3 & x \end{vmatrix} = x$ 31. $\begin{vmatrix} x & 5 \\ -4 & x \end{vmatrix} = 24$ 32. $\begin{vmatrix} x+3 & 4 \\ x-3 & 5 \end{vmatrix} = -7$

33. Solve, using Cramer's Rule.
$\sqrt{3}x + \pi y = -5$
$\pi x - 3y = 4$

Rewrite each expression using determinants. Answers may vary.

34. $2L + 2W$ 35. $a^2 + b^2$

Challenge

36. Evaluate. $\begin{vmatrix} 1 & x & y \\ 1 & x & y \\ 1 & 1 & 1 \end{vmatrix}$ 37. Verify. $\begin{vmatrix} 1 & x & x^2 \\ 1 & y & y^2 \\ 1 & z & z^2 \end{vmatrix} = (x - y)(y - z)(z - x)$

38. Use the addition method to prove Cramer's Rule for a system of two equations. That is, verify that the solution of the system:

$ax + by = c$ is given by $x = \frac{ce - bf}{ae - db}$ and $y = \frac{af - dc}{ae - db}$,
$dx + ey = f$

when $ae - db \neq 0$.

TRIG

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186 : 1-10

191 : 1-8, 15-20, 27-32

ADDING, SUBTRACTING, MULTIPLYING MATRICES

$$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix} + \begin{bmatrix} 5 & 6 \\ 7 & 8 \end{bmatrix} = \begin{bmatrix} 6 & 8 \\ 10 & 12 \end{bmatrix}$$

$$\begin{bmatrix} 3 & 4 \\ 5 & 6 \end{bmatrix} - \begin{bmatrix} 2 & 7 \\ 3 & 4 \end{bmatrix} = \begin{bmatrix} 1 & -3 \\ 2 & 2 \end{bmatrix}$$

$$2\begin{bmatrix} 5 & 6 \\ 7 & 8 \end{bmatrix} = \begin{bmatrix} 10 & 12 \\ 14 & 16 \end{bmatrix}$$

$$\begin{bmatrix} 2 & 3 \\ 5 & 6 \\ 7 & 8 \end{bmatrix} \quad \begin{bmatrix} 5 \\ 6 \end{bmatrix} \quad \begin{bmatrix} 28 \\ 61 \\ 83 \end{bmatrix}$$

$3\times 2 \qquad 2\times 1 \qquad 3\times 1$

$$\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix} \quad \begin{bmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{bmatrix} = \begin{bmatrix} 22 & 28 \\ 49 & 64 \\ 76 & 100 \end{bmatrix}$$

$3\times 3 \qquad 3\times 2 \qquad 3\times 2$

$$\begin{bmatrix} 1 & -2 \\ 3 & 4 \end{bmatrix} \quad \begin{bmatrix} -2 & 1 \\ 3/2 & -1/2 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

$2\times 2 \qquad 2\times 2 \qquad 2\times 2$

INVERSES

IDENTITY

NAME _____

TRIG
MATRICES
DAY 3

$A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$

$B = \begin{bmatrix} 3 & 4 \\ 5 & 6 \end{bmatrix}$

$C = \begin{bmatrix} -2 & 3 \\ -4 & 5 \end{bmatrix}$

$D = \begin{bmatrix} 6 & 2 \\ 0 & -1 \end{bmatrix}$

$E = \begin{bmatrix} 3 & 4 \\ 6 & 8 \end{bmatrix}$

$F = \begin{bmatrix} -2 & 3 \\ -1 & -4 \end{bmatrix}$

$G = \begin{bmatrix} 5 & 6 & 7 \\ 0 & 1 & 2 \end{bmatrix}$

$H = \begin{bmatrix} 5 & 2 & -3 \\ 4 & -1 & -4 \end{bmatrix}$

$I = \begin{bmatrix} 3 & -2 \\ 4 & -1 \\ 5 & 0 \end{bmatrix}$

$J = \begin{bmatrix} -5 & -3 \\ 6 & 2 \\ 7 & -4 \end{bmatrix}$

$K = \begin{bmatrix} 3 & 4 & 5 & 6 \\ 1 & 2 & 3 & 4 \end{bmatrix}$

$L = \begin{bmatrix} 5 & -2 & 3 & 4 \\ 1 & 3 & 5 & 6 \end{bmatrix}$

$M = \begin{bmatrix} 0 & 1 \\ 1 & 0 \\ -3 & 2 \\ 4 & 0 \end{bmatrix}$

$N = \begin{bmatrix} 1 & -2 & 3 \\ 0 & 4 & -2 \\ 7 & -5 & 0 \\ -3 & 2 & 6 \end{bmatrix}$

NAME _____

TRIG
MATRICES, P 2
DAY 3

FIND, IF POSSIBLE

1. $A + B$
2. $C + F$
3. $A + F$
4. $I + J$
5. $I + N$
6. $F - A$
7. $G - H$
8. $E - G$
9. $A - C$
10. $3A$
11. $-4B$
12. $6L$
13. AB
14. AH
15. IF
16. EM
17. ME
18. LN
19. DK
20. KL
21. MN
22. CD
23. GI
24. EI
25. NG

KEY - DAY 3

ODDS + #12
IN BACK 191 ONLY

1. $\begin{bmatrix} 4 & 6 \\ 8 & 10 \end{bmatrix}$

2. $\begin{bmatrix} -4 & 6 \\ -5 & 1 \end{bmatrix}$

3. $\begin{bmatrix} -1 & 5 \\ 2 & 0 \end{bmatrix}$

4. $\begin{bmatrix} -2 & -5 \\ 10 & 1 \\ 12 & -4 \end{bmatrix}$

5. $\emptyset$

6. $\begin{bmatrix} -3 & 1 \\ -4 & -8 \end{bmatrix}$

7. $\begin{bmatrix} 0 & 4 & 10 \\ -4 & 2 & 6 \end{bmatrix}$

8. $\emptyset$

9. $\begin{bmatrix} 3 & -1 \\ 7 & -1 \end{bmatrix}$

10. $\begin{bmatrix} 3 & 6 \\ 9 & 12 \end{bmatrix}$

11. $\begin{bmatrix} -12 & -16 \\ -20 & -24 \end{bmatrix}$

12 $\begin{bmatrix} 30 & -12 & 15 & 24 \\ 6 & 18 & 30 & 36 \end{bmatrix}$

13. $\begin{bmatrix} 13 & 16 \\ 29 & 36 \end{bmatrix}$ 2×2

14. $\begin{bmatrix} 13 & 0 & -11 \\ 31 & 2 & -25 \end{bmatrix}$ 2×3

15. $\begin{bmatrix} -4 & 17 \\ -7 & 16 \\ -10 & 15 \end{bmatrix}$ 3×2

16. $\emptyset$

Key - HW 3, cont.

17.  4×2

$$\begin{bmatrix} 6 & 8 \\ 3 & 4 \\ 3 & 4 \\ 12 & 16 \end{bmatrix}$$

18. $\begin{bmatrix} 14 & -25 & 43 \\ 18 & -3 & 33 \end{bmatrix}$ 2×3

19. $\begin{bmatrix} 20 & 28 & 36 & 44 \\ -1 & -2 & -3 & -4 \end{bmatrix}$ 2×4

20. ϕ

21. ϕ

22. $\begin{bmatrix} -12 & -7 \\ -24 & -13 \end{bmatrix}$ 2×2

23. $\begin{bmatrix} 74 & -16 \\ 14 & -1 \end{bmatrix}$ 2×2

24. ϕ

25. ϕ

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MATRIX SHEET 6

SOLVING CHOICES:

GAUSSIAN ELIMINATION

GAUSS-JORDAN * MY FAVORITE

MULTIPLYING INVERSES

CONSISTENT: HAS SOLUTION (AT LEAST 1)

ooc: 6 row INCONSISTENT: NO SOLUTION

all 0 row DEPENDENT: EQUATIONS GO AWAY (EXTRAS)

INDEPENDENT: EQUATIONS DON'T GO AWAY

$\left[\begin{array}{cc|c} 1 & 2 & 5 \\ 3 & 4 & 11 \\ 4 & 6 & 16 \end{array}\right]$ $\left[\begin{array}{cc|c} 1 & 2 & 5 \\ 0 & -2 & -4 \\ 0 & -2 & -4 \end{array}\right]$ $\left[\begin{array}{cc|c} 1 & 2 & 5 \\ 0 & 1 & 2 \\ 0 & 0 & 0 \end{array}\right]$ consistent, dependent (1, 2)

$\left[\begin{array}{cc|c} 1 & 2 & 5 \\ 2 & 4 & 10 \end{array}\right]$ $\left[\begin{array}{cc|c} 1 & 2 & 5 \\ 0 & 0 & 0 \end{array}\right]$ consistent dependent

$\left[\begin{array}{cc|c} 1 & 3 & 7 \\ 2 & 4 & 10 \end{array}\right]$ $\left[\begin{array}{cc|c} 1 & 3 & 7 \\ 0 & -2 & -4 \end{array}\right]$ consistent, independent (1, 2)

$\left[\begin{array}{cc|c} 1 & 2 & 3 \\ 4 & 5 & 9 \\ 2 & 5 & 8 \end{array}\right]$ $\left[\begin{array}{cc|c} 1 & 2 & 3 \\ 0 & -3 & -3 \\ 0 & 1 & 2 \end{array}\right]$ inconsistent, independent

$\left[\begin{array}{cc|c} 2 & 3 & 6 \\ 4 & 6 & -7 \end{array}\right]$ $\left[\begin{array}{cc|c} 2 & 3 & 6 \\ 0 & 0 & -19 \end{array}\right]$ inconsistent, independent

MATRIX SHEET 7

NAME _____

TRIC MATRICES DAY 7

ARE THESE SYSTEMS DEPENDENT OR INDEPENDENT?

1. $\left[\begin{array}{cc|c} 1 & 4 & 3 \\ 2 & 8 & 4 \end{array}\right]$

2. $\left[\begin{array}{cc|c} 5 & 6 & 9 \\ 7 & 8 & 10 \end{array}\right]$

3. $\left[\begin{array}{cc|c} 1 & 3 & 1 \\ 2 & 5 & 2 \end{array}\right]$

4. $\left[\begin{array}{cc|c} 5 & 2 & 1 \\ 10 & 4 & 2 \end{array}\right]$

5. $\left[\begin{array}{ccc|c} 1 & 2 & 3 & 1 \\ 4 & 0 & 5 & 5 \\ 6 & 0 & 7 & 10 \end{array}\right]$

6. $\left[\begin{array}{ccc|c} 1 & 0 & 0 & 1 \\ 6 & 4 & 0 & 2 \\ 2 & 3 & 5 & 3 \end{array}\right]$

7. $\left[\begin{array}{ccc|c} 1 & 3 & 4 & 6 \\ 5 & 6 & 7 & 7 \\ 6 & 9 & 11 & 13 \end{array}\right]$

8. $\left[\begin{array}{ccc|c} 2 & 3 & 5 & 1 \\ 6 & 7 & 8 & 2 \\ 0 & 0 & 0 & 3 \end{array}\right]$

9. $\left[\begin{array}{cc|c} 2 & 2 & 7 \\ 3 & 4 & 8 \\ 5 & 6 & 15 \end{array}\right]$

10. $\left[\begin{array}{ccc|c} 1 & 5 & 9 & 13 \\ 2 & 6 & 10 & 14 \\ 3 & 7 & 11 & 15 \\ 0 & 0 & 0 & 0 \end{array}\right]$

SOLVE BY ANY METHOD. LABEL EACH SYSTEM AS INCONSISTENT / CONSISTENT AND INDEPENDENT / DEPENDENT. IF THEY ARE CONSISTENT, SOLVE FULLY IF POSSIBLE.

11. $\left[\begin{array}{cc|c} 1 & 2 & 5 \\ 3 & 6 & 15 \end{array}\right]$

12. $\left[\begin{array}{cc|c} 1 & 2 & 3 \\ 5 & 6 & 17 \end{array}\right]$

13. $\left[\begin{array}{cc|c} 1 & 4 & 6 \\ 1 & 4 & 7 \end{array}\right]$

14. $\left[\begin{array}{cc|c} 2 & 3 & 5 \\ 5 & 6 & 11 \end{array}\right]$

15. $\left[\begin{array}{ccc|c} 2 & 3 & 4 & 5 \\ 4 & 7 & 9 & 11 \end{array}\right]$

16. $\left[\begin{array}{cc|c} 1 & 2 & 5 \\ 0 & 0 & 3 \end{array}\right]$

17. $\left[\begin{array}{ccc|c} 1 & 2 & 3 & 3 \\ 0 & 1 & 0 & 2 \\ 0 & 0 & 0 & 0 \end{array}\right]$

18. $\left[\begin{array}{cc|c} 1 & 2 & 4 \\ 3 & 4 & 10 \\ 4 & 6 & 14 \end{array}\right]$

19. $\left[\begin{array}{cc|c} 2 & 1 & 4 \\ 6 & 3 & 2 \end{array}\right]$

20. $\left[\begin{array}{cc|c} 2 & 5 & 14 \\ 6 & 7 & 26 \end{array}\right]$

21. $\left[\begin{array}{ccc|c} 1 & 2 & 3 & 12 \\ 4 & 5 & 6 & 30 \\ 2 & 5 & 7 & 28 \end{array}\right]$

22. $\left[\begin{array}{ccc|c} 1 & 2 & 3 & 2 \\ 5 & 7 & 9 & 3 \\ 7 & 11 & 15 & 7 \end{array}\right]$

KEY - DAY 7

1. I
2. I
3. I
4. D
5. I
6. I
7. D
8. I
9. D
10. D

11.	C	D	
12.	C	I	$(4, -\frac{1}{2})$
13.	I	I	
14.	C	I	$(1,1)$
15.	C	I	
16.	I	I	
17.	C	D	
18.	C	D	$(2,1)$
19.	I	I	
20.	C	I	$(2,2)$
21.	C	I	$(2,2,2)$
22.	C	D	