LSS Fall Final Review
KEY

1. CANT

2. $\begin{bmatrix} 8 & -1 \\ 0 & 4 \end{bmatrix}$

3. $\begin{bmatrix} -8 & 8 & 5 \\ -9 & -10 & 6 \end{bmatrix}$

4. $A^{-1} = \begin{bmatrix} 1/2 & 1/2 \\ 3/4 & 5/4 \end{bmatrix}$

$B^{-1} = \begin{bmatrix} 2/3 & -1/3 \\ -1 & 1 \end{bmatrix}$

$A^{-1} + B^{-1} = \begin{bmatrix} 7/6 & 1/6 \\ -1/4 & 9/4 \end{bmatrix}$

5. $\begin{bmatrix} 7 & -8 \\ -24 & 7 \end{bmatrix}$

6. $\begin{bmatrix} 1 & -1/2 \\ 3/2 & 1/2 \\ 0 & 4 \end{bmatrix}$

7. $\begin{bmatrix} 3 & 7 & 10 \\ -15 & -8 & -6 \end{bmatrix}$

8. $\begin{bmatrix} 21 & -7 & -3 \\ 21 & 1 & -9 \end{bmatrix}$

9. CANT

10. $\begin{bmatrix} 0 & -7 \\ -1 & 4 \end{bmatrix}$

11. 3

12. $\begin{bmatrix} 31 & -14 \\ -21 & 10 \end{bmatrix}$

13. $\begin{bmatrix} 9 & 5 & 32 \\ -45 & 6 & -12 \end{bmatrix}$

14. $\begin{bmatrix} 14 & -18 & 8 \\ 21 & -7 & -3 \\ 0 & -16 & 12 \end{bmatrix}$

15. 6

16. $\frac{1}{\det(A)} \cdot \begin{bmatrix} d & -b \\ -c & a \end{bmatrix} =$

$\frac{1}{2} \begin{bmatrix} -4 & -5 \\ 2 & 2 \end{bmatrix} = \begin{bmatrix} -2 & -5/2 \\ 1 & 1 \end{bmatrix}$

17. $6 \cdot 4 - 8x = 0$ $\quad x = 3$

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18. $M = \begin{bmatrix} -16 & -3 \\ -2 & 6 \end{bmatrix}$

$m_{2,2} = \boxed{6}$

19. $\begin{bmatrix} -1 & 0 \\ 0 & 1 \end{bmatrix} \cdot \begin{bmatrix} -1 & -2 & 4 \\ 2 & -3 & 5 \end{bmatrix}$

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

20. 1×2

21. Nope

22. 4×5

23. Nope

24. $5x - 3y - 6z = -4$
$3x - y - 5z = 5$
$2x - 3y - 2z = -10$

$A = \left[\begin{array}{ccc|c} 5 & -3 & -6 & -4 \\ 3 & -1 & -5 & 5 \\ 2 & -3 & -2 & -10 \end{array}\right]$

25. $RREF(A) = \begin{bmatrix} 1 & 0 & 0 & -2 \\ 0 & 1 & 0 & 4 \\ 0 & 0 & 1 & -3 \end{bmatrix}$

$\boxed{x = -2 \quad y = 4 \quad z = -3}$

24. F = # of \$5 Bills
T = # of \$10 Bills

$F + T = 36$
$5F + 10T = 225$

$\begin{bmatrix} 1 & 1 \\ 5 & 10 \end{bmatrix} \begin{bmatrix} F \\ T \end{bmatrix} = \begin{bmatrix} 36 \\ 225 \end{bmatrix}$

27. $\begin{bmatrix} 1 & 1 \\ 5 & 10 \end{bmatrix}^{-1} \cdot \begin{bmatrix} 36 \\ 225 \end{bmatrix}$

$F = 27$
$T = 9$

$\boxed{27 - \$5 \text{ Bills}, \quad 9 - \$10 \text{ Bills}}$

28. $I = PRt$
$I = 750(0.035)(10)$
$I = \$262.50$
$A = P + I = \boxed{\$1,012.50}$

29. $A = 7450\left(1 + \frac{0.045}{12}\right)^{12 \cdot 5}$

$A = \$8294.71$

30. $A = Pe^{Rt} = 6275\, e^{0.0125 \cdot 8}$
$A = 6934.95$
$A - P = I$
$6934.95 - 6275 =$
$\boxed{\$659.95}$

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31) $y = 26460 - 2205x$

7.2381 years

32) $16,050

33) $5250 = 20900(1-0.095)^t$

$t =$ 13.84 years

34) $24000(1-0.0725)^{10.5}$

$11,796.94

35) $7000\left(1+\frac{0.05}{4}\right)^{4.10} =$

$11,505.34 quarterly

$7000\left(1+\frac{0.05}{12}\right)^{12.10} =$

$11,529.07 monthly

36) FVmPV(12x360, 3.5, 0, 12936.41, 360, 360)

$-8,500

37) $1000e^{0.015 \times 10}$

$1,161.83

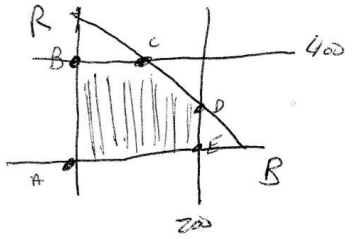
38) a) R = # of Roses sold

B = # of Beans sold

b) $1R+2B \leq 500$

$B \leq 200$

$R \leq 400$



c) a) (0, 0) c) (50, 400) e) (200, 0)

b) (0, 400) d) (200, 100)

d) $2R+3B =$ Profit

e) $3(200)+2(0) = 600$

$3(200)+2(100) = 800$

$3(50)+2(400) = 950$ ★

$3(0)+2(400) = 800$

50 Beans + 400 Roses gives $950 profit