

(081) Math 131: Finite Mathematics. Quiz TWO(Ch:5,7&9)Jan. 21, 2009

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Contents

Marks: 30; Time: 40 Minutes

NAME:.....

I.D.#:

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SERIAL# SECTION #: (check one)

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| | | 1 | * 3 | 5 |
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NOTE: SHOW ALL STEPS OF THE SOLUTION.

Q.1. 233Rolf30. (Marks : 10). Sketch the graph of the following linear system of inequalities. Shade the feasible region and find the corner points of it.

Then mark TRUE (✓) OR FALSE (✓) each of the following Statements.

You can make maximum Six statements to be True and maximum Six statements to be false.

$$\begin{cases} x + y \geq 10 \\ x + 3y \leq 72 \\ 10x + 3y \leq 180 \\ x \geq 0 \text{ \& } y \geq 0 \end{cases}$$

1. TRUE or FALSE (10,0) and (18,0) are corner points.
2. TRUE or FALSE (72,0) and (12,20) are corner points.

3. TRUE or FALSE (12,20) and (0,24) are corner points.
4. TRUE or FALSE (0,24) and (0,10) are corner points.
5. TRUE or FALSE (0,10) and (10,0) are corner points.
6. TRUE or FALSE (18,0) and (72,0) are corner points.
7. TRUE or FALSE (12,20) and (0,60) are corner points.
8. TRUE or FALSE (0,24) and (0,60) are corner points.
9. TRUE or FALSE (12,20) and (0,0) are corner points.
10. TRUE or FALSE The Feasible region has exactly five corner points.

Q.2.Q.2. (Marks:10). Use the Pivot entry 1 in the second row and second column to transform the following tableau into a new equivalent tableau by using elementary row operations.

$$\left[\begin{array}{cccccc|c} x & y & z & s & t & u & Z & : & ct \\ 7 & 1 & 6 & 1 & 0 & 0 & 0 & : & 60 \\ 2 & 1 & 3 & 0 & 1 & 0 & 0 & : & 20 \\ 5 & 1 & 9 & 0 & 0 & 1 & 0 & : & 40 \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ -2 & -4 & -1 & 0 & 0 & 0 & 1 & : & 0 \end{array} \right]$$

ELEMENTARY ROW OPERATIONS:

$$\left[\begin{array}{cccccc|c} x & y & z & s & t & u & Z & : & ct \\ D & 0 & A & 1 & G & 0 & 0 & : & L \\ 2 & 1 & 3 & 0 & 1 & 0 & 0 & : & 20 \\ E & 0 & B & 0 & -1 & 1 & 0 & : & K \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ F & 0 & C & 0 & 4 & 0 & 1 & : & M \end{array} \right]$$

Find the values of the constants:

| Constants | VALUE | Check(√) |
|-----------|-------|----------|
| A →= | | |
| B →= | | |
| C →= | | |
| D → | | |
| E →= | | |
| F →= | | |
| G →= | | |
| K →= | | |
| L →= | | |
| M →= | | |

Q.3. (Marks: 5). 126Rolf75TB. Ericks invested some money at 8 % compounded semiannually. At the end of 5 years her investment had grown to \$ 4563.55.

Find the initial investment that belongs to the interval:

You must have to write Solution and Answer:

_____ Dollars.

| Constants | VALUE | (√) |
|-----------|---------------------------------------|-----|
| A →= | (100, 1000] | |
| B →= | (1000, 1500] | |
| C →= | (1500, 2000] | |
| D → | (2000, 2500] | |
| E →= | (2500, 3000] | |
| F →= | (3000, 3500] | |
| G →= | (3500, 4000] | |
| K →= | (4000, 4500] | |
| L →= | (4500, 5000] | |
| M →= | NONE OF THE ABOVE CHOICES IS CORRECT. | |

Q.4. (Marks: 5). 279TB10.1.4. A random variable X has a probability mass function $p(x) = P(X = x)$ given by :

| | | | | | |
|---------|-----|-----|-----|-----|-----|
| $X = x$ | -2 | -1 | 0 | 1 | 2 |
| $p(x)$ | 0.3 | 0.1 | 0.1 | 0.3 | 0.2 |

Find the values of the following:

- $P(X > 0) = \underline{\hspace{2cm}}$
- $P(2X + 1 = 5) = \underline{\hspace{2cm}}$
- $P(2X > 1) = \underline{\hspace{2cm}}$
- $\mu = E[X] = \underline{\hspace{2cm}}$
- $E(X^2) = \underline{\hspace{2cm}}$