

(082) Math 131: Finite Mathematics Quiz Test (5.1-2-3-6.4-5-7.4-7.8-10.3): May 27, 2009

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Contents

Marks: 20; Time: 20 Minutes

NAME:

I.D.#:

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SERIAL# SECTION #: (check: Sec.01A)

01A	8 a	9 a	10 a
	1 m	2 m	3 m

NOTE: SHOW ALL STEPS OF THE SOLUTION.

NO CREDIT FOR ANSWERS WITHOUT COMPLETE SOLUTION.

The questions are not in any order of difficulty at all. Only the nonprogrammable calculators are allowed.

Write the simplified answer of each question at the end of each question.

Q.1. 73Rof20TBk. (Marks : 8). Set up the initial SIMPLEX TABLEAU for the following problem. Do not solve.

An industrial furniture company manufactures desks, cabinets, and chairs.

These items involve metal, wood, and plastic.

The following table represents, in convenient units, the amounts that go into each product and profit on each item.

	Metal	Wood	Plastic	Profit
Desk	3	4	2	\$ 16
Cabinet	9	1	1	\$ 12
Chair	1	2	2	\$ 6
Maxi- mum	810	400	100	Profit P

If the company has available 810 units of metal, 400 units of wood, and 100 units of plastic, how many desks, cabinets, and chairs should be produced to maximize total profit?

(A)

$$\left[\begin{array}{ccccccc|c} 3 & 9 & 1 & 1 & 0 & 0 & 0 & 810 \\ 4 & 1 & 2 & 0 & 1 & 0 & 0 & 400 \\ 2 & 1 & 2 & 0 & 0 & 1 & 0 & 100 \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ -12 & -16 & -6 & 0 & 0 & 0 & 1 & 0 \end{array} \right]$$

(B)

(C)

$$\left[\begin{array}{ccccccc|c} 16 & 12 & 6 & 1 & 0 & 0 & 0 & 810 \\ 4 & 1 & 2 & 0 & 1 & 0 & 0 & 400 \\ 2 & 1 & 2 & 0 & 0 & 1 & 0 & 100 \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ -3 & -9 & -1 & 0 & 0 & 0 & 1 & 0 \end{array} \right]$$

(D)

$$\left[\begin{array}{ccccccc|c} 3 & 9 & 1 & 1 & 0 & 0 & 0 & 810 \\ 16 & 12 & 6 & 0 & 1 & 0 & 0 & 400 \\ 2 & 1 & 2 & 0 & 0 & 1 & 0 & 100 \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ -4 & -1 & -2 & 0 & 0 & 0 & 1 & 0 \end{array} \right]$$

(E)

$$\left[\begin{array}{ccccccc|c} 3 & 9 & 1 & 1 & 0 & 0 & 0 & 810 \\ 4 & 1 & 2 & 0 & 1 & 0 & 0 & 400 \\ 16 & 12 & 6 & 0 & 0 & 1 & 0 & 100 \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ -2 & -1 & -2 & 0 & 0 & 0 & 1 & 0 \end{array} \right]$$

(F)

$$\left[\begin{array}{ccccccc|c} 3 & 9 & 1 & 1 & 0 & 0 & 0 & 400 \\ 4 & 1 & 2 & 0 & 1 & 0 & 0 & 100 \\ 2 & 1 & 2 & 0 & 0 & 1 & 0 & 810 \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ -16 & -12 & -6 & 0 & 0 & 0 & 1 & 0 \end{array} \right]$$

(G)

$$\left[\begin{array}{ccccccc|c} 3 & 9 & 1 & 1 & 0 & 0 & 0 & 810 \\ 4 & 1 & 2 & 0 & 1 & 0 & 0 & 400 \\ 2 & 1 & 2 & 0 & 0 & 1 & 0 & 100 \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ -16 & -12 & -6 & 0 & 0 & 0 & 1 & 0 \end{array} \right]$$

(H)

$$\left[\begin{array}{ccccccc|c} 3 & 9 & 1 & 1 & 0 & 0 & 0 & 810 \\ 4 & 1 & 2 & 0 & 1 & 0 & 0 & 400 \\ 2 & 1 & 2 & 0 & 0 & 1 & 0 & 100 \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ -12 & -16 & -16 & 0 & 0 & 0 & 1 & 0 \end{array} \right]$$

(I)

$$\left[\begin{array}{ccccccc|c} 3 & 9 & 1 & 1 & 0 & 0 & 0 & 810 \\ 4 & 1 & 2 & 0 & 1 & 0 & 0 & 400 \\ 2 & 1 & 2 & 0 & 0 & 1 & 0 & 100 \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ -16 & -12 & -6 & 0 & 0 & 0 & 1 & 1310 \end{array} \right]$$

(J)

$$\left[\begin{array}{ccccccc|c} 3 & 9 & 1 & 1 & 0 & 0 & 0 & 810 \\ -4 & -1 & -2 & 0 & 1 & 0 & 0 & 400 \\ 2 & 1 & 2 & 0 & 0 & 1 & 0 & 100 \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ -16 & -12 & -6 & 0 & 0 & 0 & 1 & 0 \end{array} \right]$$

(J) None of the previous choices given in this question is correct. Write your complete answer.

Q.2.311Sullivan68. (Marks : 5). Saving for College. A new born child receives a \$ 3000 gift toward a college education.

How much will the \$ 3000 be worth in 17 years if it is invested at 10 % compounded quarterly?

Amount = _____ Dollars.

Q.3.65MS72.(Marks : 6). Mixture. Suppose that a store has three sizes of cans of nuts.

The *large* size contains 2 pounds of peanuts and 1 pound of cashews.

The *mammoth* size contains 1 pound of walnuts, 6 pounds of peanuts, and 2 pounds of cashews.

The *giant* size contains 1 pound of walnuts, 4 pounds of peanuts, and 2 pounds of cashews.

Suppose that the store receives order for 5 pounds of walnuts, 26 pounds of peanuts, and 12 pounds of cashews.

How can it fill this order with the given sizes of cans?

Let x = Number of cans of nuts of *large* size.

Let y = Number of cans of nuts of *mammoth* size.

Let z = Number of cans of nuts of *giant* size.

Set up the system of Equations without solution.

$$(A) \begin{cases} x + y + z = 5 \\ 2x + 6y + 4z = 26 \\ x + 2y + 2z = 12 \end{cases}$$

$$(B) \begin{cases} 2x + y + z = 5 \\ 2x + 6y + 4z = 26 \\ x + 2y + 2z = 12 \end{cases}$$

$$(C) \begin{cases} x + z = 5 \\ 2x + 6y + 4z = 26 \\ x + 2y + 2z = 12 \end{cases}$$

$$(D) \begin{cases} y + z = 5 \\ 2x + 2y + 4z = 26 \\ x + 6y + 2z = 12 \end{cases}$$

$$(E) \begin{cases} y + z = 5 \\ 2x + 6y + 4z = 12 \\ x + 2y + 2z = 26 \end{cases}$$

$$(F) \begin{cases} y + z = 5 \\ 4x + 6y + 2z = 26 \\ 2x + y + 2z = 12 \end{cases}$$

$$(G) \begin{cases} y + z = 5 \\ 2x + 6y + 4z = 26 \\ x + 2y + 2z = 12 \end{cases}$$

$$(H) \begin{cases} y + z = 5 \\ x + 3y + 2z = 13 \\ x + y + z = 6 \end{cases}$$

$$(J) \begin{cases} y + z = 5 \\ 2x + 6y + 4z = 26 \\ x + 2y + 2z = 12 \end{cases}$$

$$(K) \begin{cases} y + z = 5 \\ 4x + 2y + 6z = 26 \\ x + 2y + 2z = 12 \end{cases}$$

$$(L) \begin{cases} y + z = 5 \\ 2x + 6y + 4z = 26 \\ 2x + y + 2z = 12 \end{cases}$$

$$(M) \begin{cases} 4x + 6y + 2z = 26 \\ y + z = 5 \\ x + 2y + 2z = 12 \end{cases}$$

(N) NONE OF THE ABOVE CHOICES IS CORRECT.

The correct system of equations is given by: