

Quiz # 5

MATH 141 Summer 1 2012 - Dr. Oksana Shatalov

LAST NAME _____ FIRST NAME _____ Section # _____

Due Tuesday 6/12 at the beginning of class.

- **If turned in later than 10 minutes into class, 5 points off. No papers will be accepted after class.**
- If you turn it in to my office (Blocker 629F), place it in my mailbox (Blocker 603) or e-mail a PDF-version to me, make sure you do it before 9:45am, Tuesday 6/12/2012.
- You **MUST** show **ALL** your work to get full credit. Just writing the answers down is not enough.
- Your work must be neat, easy to follow. **BOX YOUR FINAL ANSWERS.**
- You may use notes and textbook, but not the help of anything else.

On my honor, as an Aggie, I certify that the solution submitted by me is my own work. I had neither given nor received unauthorized aid on this work.

Signature: _____

1. *Set up but do not solve the following linear programming problem (clearly define the variables).*

Food A contains 5 units of vitamin A, 6 units of vitamin B and 3 mg of fat per serving. Food B contains 6 units of vitamin A, 3 units of vitamin B and 4 mg of fat per serving. If a dinner consists of these two foods is to have at least 20 units of vitamin A and at least 9 units of vitamin B, how many servings of each should be used in order to minimize the total milligrams of fat?

2. Find the minimum values of $C = 3x - y$ on the feasible region which is bounded and has the following corner points $(3, 16)$, $(16, 24)$, $(28, 8)$, $(8, 2)$.

3. Determine graphically the feasible region (FR) for the following system of inequalities and list all corner points. Also determine if the feasible region is bounded.

$$\begin{array}{l} 2x + 3y \geq 15 \\ \text{(a)} \quad 2x + y \geq 8 \\ \quad \quad x \geq 0 \\ \quad \quad y \geq 2 \end{array}$$

$$\begin{array}{l} x + 3y \leq 15 \\ \text{(b)} \quad 2x + y \leq 10 \\ \quad \quad x \leq 4 \\ \quad \quad x \geq 0 \quad , \quad y \geq 0 \end{array}$$