

Student's Name and Section: _____

In each multiple choice problem, circle the letter corresponding to your answer.

These set of practice problems are designed to prepare you for key concepts which are necessary in this class. These problems are only to be used as a guideline to study. It is highly recommended that the students go through the class notes, notes from the internet provided for the class, and homework examples along with these problems.

Problem 1: [20 points] Four five-point problems.

(i) A truck will be loaded with x crates of cargo A and y crates of cargo B. Each crate of cargo A is 5 ft³ in volume, weighs 150 lbs, and earns \$15 for the driver. Each crate of cargo B is 4 ft³ in volume, weighs 250 lbs, and earns \$10 for the driver. The truck can carry no more than 325 ft³ of crates and no more than 12,000 lbs. The driver will earn M dollars from this trip.

(2 points) Express M as a linear function of x and y : $M =$

(3 points) Which of these **is not** one of the constraints on the variables?

(A) $5x + 150y \leq 12000$ (B) $5x + 4y \leq 325$ (C) $x \geq 0$ (D) $150x + 250y \leq 12000$ (E) $y \geq 0$

Problem 2: [10 points]

Fill in the blanks for the table.

Table 1: Linear programming problem

Type 1	Type 2	Available
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Problem 3: [10 points] Suppose that an industry has demand equation $p = -.0003q + 14$ and supply equation $p = .0007q + 4$. Use algebraic steps to find the equilibrium quantity and price, and state which is which.

Problem 4: [15 points] Suppose that x and y are subject to the constraints

$$\begin{array}{rcrcrcrcrcl} 5x & & + & 3y & \geq & 15 \\ x & & + & 2y & \geq & 6 \\ x & \geq & 0, & y & \geq & 0 \end{array}$$

Sketch the feasible set and use algebra steps to find the coordinates of its vertices. (Say whether you are shading the FS or the points not in the FS.)

Suggested Problems from the Text Book

1. Section 1.1 12, 14, 18, 20, 26, 40, 44
2. Section 1.2 4, 6, 10, 16, 17, 28
3. Section 1.5 3, 4, 10, 19, 28, 31, 25
4. Section 3.1 2, 4, 5, 10
5. Section 3.2 1, 3, 4, 6, 12, 14, 16, 25, 26, 27, 41, 42, 43
6. Section 3.3 10, 14, 16, 26, 30, 34
7. Section 4.1 6, 11-14, 31-34, 44, 23 -30
8. Section 4.2 2, 8, 12, 18, 24
9. Section 4.3 5, 7, 9, 12, 16, 20
10. Section 4.4 5 -10, 16, 17, 22, 26, 33, 35
11. Section 5.1 2, 4, 6, 16, 18, 20, 28, 33, 35, 40
12. Section 5.2 3, 5, 7, 19, 23, 25, 29, 33, 38, 40, 42