

Math 115 — Finite Mathematics**Past Questions 3**

Time: 90 minutes

Total: 100 marks

No calculators

Name: _____

Student ID: _____

Sections 1.1–1.2, 4.1–4.3, 5.1–5.3. Answer all questions and show all your work. Calculators and mobile phones are not allowed.

Practice paper compiled from past examination questions (2016–2024), in the current exam format.

Written Questions — 100 marks**Question 1 [15 marks]**

Solve and graph: $\frac{2x-1}{5} - \frac{1-x}{3} < 2x-1 \leq \frac{3x+5}{2}$

Question 2 [10 marks]

Solve the formula $2r = \frac{5t+7r}{3t+1}$ for r in terms of t .

Question 3 [15 marks]

A line $y = mx + b$ passes through the points $(2, 0)$ and $(0, 3)$. Find m and b .

Question 4 [20 marks]

Solve the following linear system using Gauss-Jordan elimination.

$$16x + 17y + 18z + 19w = 20$$

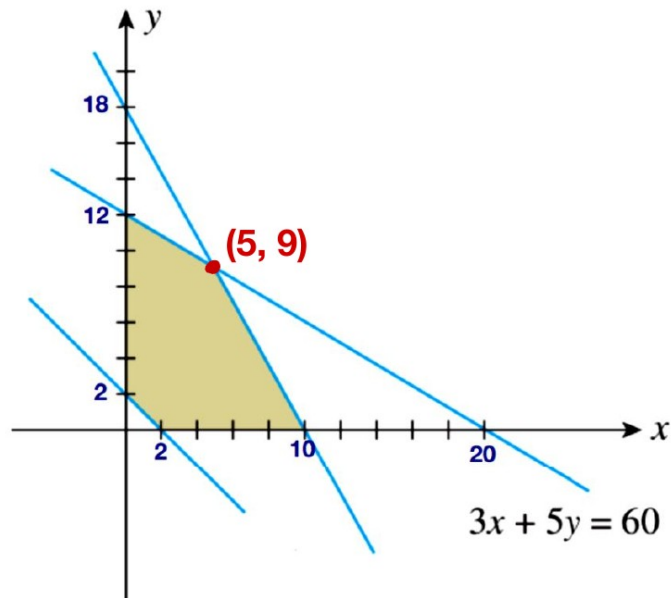
$$11x + 12y + 13z + 14w = 15$$

$$6x + 7y + 8z + 9w = 10$$

$$x + 2y + 3z + 4w = 5$$

Question 5 [10 marks]

Write a system of linear inequalities in two variables that describes the shaded region and find the optimal values of the objective function $z = 3x + 2y$ within this region.

**Question 6** [15 marks]

Solve the following linear programming problem using geometric method.

Minimize and Maximize the objective function p .

$$p = -x + 3y$$

Subject to the following constraints.

$$2x + y \geq 4$$

$$-x + 2y \geq 4$$

$$y \leq 6$$

$$x, y \geq 0$$

Question 7 [15 marks]

In a laboratory experiment, mice are fed 5 packets of food containing a total 80 units of vitamins E . There are three different brands of food packets that can be used. A packet of brand A contains 5 units of vitamin E , a packet of brand B contains 10 units of vitamin E , and a packet of brand C contains 20 units of vitamin E . How many packets of each brand should be mixed and fed to the mice?

End of paper

تم إعداد هذا النموذج من منصة مُرشد،
للاشتراك في مادة Finite 115 تواصل معنا على رقم المنصة: 41110098