

Worksheet: Linear Programming

IGCSE · Class 12 · Mathematics · 8 questions · 35 marks

Name: _____

Date: _____

Score: _____ / 35

Q1. Maximise $Z = 4x + 3y$ subject to $x + y \leq 8$, $x \geq 0$, $y \geq 0$. [4 marks]

Q2. Determine whether the feasible region of $x + y \leq 4$, $x \geq 0$, $y \geq 0$ is bounded or unbounded, and name its corner points. [3 marks]

Q3. Minimise $Z = 200x + 500y$ subject to $x + 2y \geq 10$, $3x + 4y \leq 24$, $x \geq 0$, $y \geq 0$. [4 marks]

Q4. Minimise $Z = 3x + 2y$ subject to $x + y \geq 8$, $3x + 5y \geq 15$, $x \geq 0$, $y \geq 0$, and justify that your answer really is the minimum. [5 marks]

Q5. A dealer has Rs 50,000 and space for 60 pieces. A table costs Rs 2500 with profit Rs 250; a chair costs Rs 500 with profit Rs 75. Formulate this as an LPP. [5 marks]

Q6. Minimise $Z = 2x + 4y$ subject to $x + 2y \geq 10$, $x \geq 0$, $y \geq 0$, and state where the minimum is attained. [5 marks]

Q7. Maximise $Z = -2x + 3y$ subject to $x \geq 2$, $x + y \geq 6$, $y \geq 0$. Does a maximum exist? [5 marks]

Q8. Show that the constraints $2x + y \leq 4$, $x + 2y \geq 10$, $x \geq 0$, $y \geq 0$ admit no feasible solution. [4 marks]
