Worksheet: Linear Programming

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

Name: _____ Date: _____ Score: _____ / 35

Q1. Maximise Z = 4x + 3y subject to x + y <= 8, x >= 0, y >= 0. *[4 marks]*

Q2. Determine whether the feasible region of x + y <= 4, x >= 0, y >= 0 is bounded or unbounded, and name its corner points. *[3 marks]*

Q3. Minimise Z = 200x + 500y subject to x + 2y >= 10, 3x + 4y <= 24, x >= 0, y >= 0. *[4 marks]*

Q4. Minimise Z = 3x + 2y subject to x + y >= 8, 3x + 5y >= 15, x >= 0, y >= 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 >= 10, x >= 0, y >= 0, and state where the minimum is attained. *[5 marks]*

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

Q8. Show that the constraints 2x + y <= 4, x + 2y >= 10, x >= 0, y >= 0 admit no feasible solution. *[4 marks]*