

## Worksheet: Linear Programming

Gujarat State Board · Class 12 · Mathematics · 3 questions · 14 marks

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Score: \_\_\_\_\_ / 14

**Q1.** Maximise  $Z = 3x + 4y$  subject to:  $x + y \leq 4$ ;  $x + 2y \leq 6$ ;  $x \geq 0$ ;  $y \geq 0$ . [3 marks]

**Q2.** A factory makes two products A and B. Product A requires 2 hours of machine time and 1 hour of labour; product B requires 1 hour of machine time and 2 hours of labour. Machine time available: 10 hours; labour available: 8 hours. Profit: A gives ₹4 per unit, B gives ₹3 per unit. How many units of A and B maximise profit? [5 marks]

**Q3.** Minimise  $Z = 5x + 10y$  subject to:  $x + 2y \leq 20$ ;  $x + y \leq 10$ ;  $x \geq 2y$ ;  $x \geq 0$ ;  $y \geq 0$ . [6 marks]