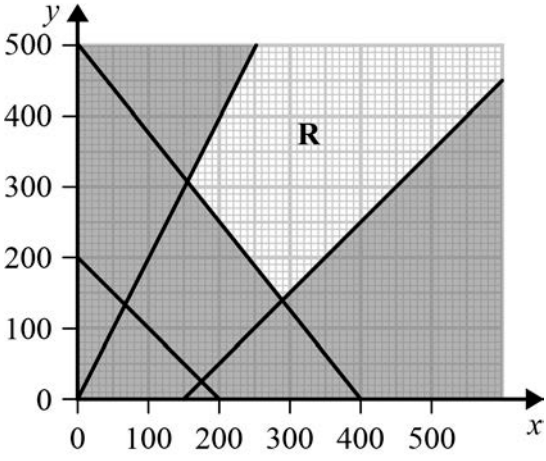


Q	Scheme	Marks	AOs	Pearson Progression Step and Progress Descriptor
1	$y + z \leq \frac{1}{2}x \Rightarrow 2y + 2z \leq x$ $z \leq 0.4(x + y + z)(oe) \Rightarrow 3z \leq 2x + 2y$ $x + y + z \leq 200 \text{ AND } x, y, z \geq 0$ Objective function maximise $C = 3x + 5y + 6z$	<b>B1</b>  <b>M1</b>  <b>A1</b>  <b>B1</b> <b>B1</b>	2.1a	2nd  Know how to formulate a linear programming problem from given information
<b>(5 marks)</b>				
<b>Notes</b>				

Q	Scheme	Marks	AOs	Pearson Progression Step and Progress Descriptor
2a		<b>B3</b>	1.1b	4th Represent a linear programming problem graphically
		<b>(3)</b>		
2b	R correctly labelled.	<b>B1</b>	1.1b	4th Identify the feasible region
		<b>(1)</b>		
2c	Uses simultaneous equations to find intersections. Identifies $\frac{2600}{9}, \frac{1250}{9}$ oe Identifies $\frac{2000}{13}, \frac{4000}{13}$ oe Attempts to evaluate C at both points $C = \frac{8950}{9}$ oe $\left(\frac{2600}{9}, \frac{1250}{9}\right)$	<b>M1</b> <b>A1</b> <b>A1</b> <b>M1</b> <b>A1</b>	1.1a	5th Solve linear programming problems to find a maximum or minimum
		<b>(5)</b>		
2d	$\frac{2600}{9} + \frac{1250}{9} = \frac{3850}{9}$	<b>M1</b> <b>A1</b>	2.2a	7th Solve linear programming problems in unfamiliar contexts
		<b>(2)</b>		
<b>(11 marks)</b>				

### Notes

- 2a** **B1** 1 line correct, **B2** 3 lines correct, **B3** all lines correct.
- 2b** Profit line does not need to be drawn.

Q	Scheme	Marks	AOs	Pearson Progression Step and Progress Descriptor
3a	$y \leq \frac{4}{3}x + 2$ oe $(3y \leq 4x + 6)$ $y \leq -\frac{3}{4}x + 3$ oe $(3x + 4y \leq 12)$ $x \geq 0, y \geq 0$	B1	1.1b	2nd Know how to formulate a linear programming problem from given information
	B1	B1		
		(3)		
3b	Profit line drawn. Uses simultaneous equations to identify coordinates. $\left(\frac{12}{25}, \frac{66}{25}\right)$ Calculates profit for at least one vertex. $\frac{144}{25}$ maximum profit	B1	1.1b	5th Solve linear programming problems to find a maximum or minimum
	M1	A1		
		(5)		
				<b>(8 marks)</b>
<b>Notes</b>				