HIGHER

2.1 Linear Programming: 10-minute Pack

EDEXCEL 4MA1 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A shop makes x adult tickets and y child tickets each day. The following conditions apply: (a) no more than 13 child tickets are made; (b) at least 10 items are made altogether; (c) the total number of items made is at most 40.
Write down an inequality for each condition, using x and y.

(Total for Question 1 is 3 marks)

---

2 Find the minimum value of $C = 3x + 8y$, where x and y satisfy $5x + 2y \geq 30$, $5x + 4y \geq 40$, $x \geq 0$ and $y \geq 0$.

(Total for Question 2 is 5 marks)

© Revision Library | revisionlibrary.co.uk

Mark scheme · 2.1 Linear Programming: 10-minute Pack

Question 1

(a) $y \leq 13$	**B1**
(b) $x + y \geq 10$	**B1**
(c) $x + y \leq 40$	**B1**

Answer: (a) $y \leq 13$; (b) $x + y \geq 10$; (c) $x + y \leq 40$

Question 2

solves $5x + 2y \geq 30$ and $5x + 4y \geq 40$ simultaneously to find the corner where the lines cross	**M1**
corner at (4, 5)	**A1**
finds the other corners of the region on the axes	**M1**
evaluates C at each corner: (0, 15) gives 120; (4, 5) gives 52; (8, 0) gives 24	**M1**
minimum C = 24 at (8, 0)	**A1**

Answer: Minimum C = 24 at (8, 0)

© Revision Library | revisionlibrary.co.uk