3. (i) Find the range of values of z for which

$$\frac{4}{z} < 8$$

giving the answer in simplest form.

(2)

(ii)

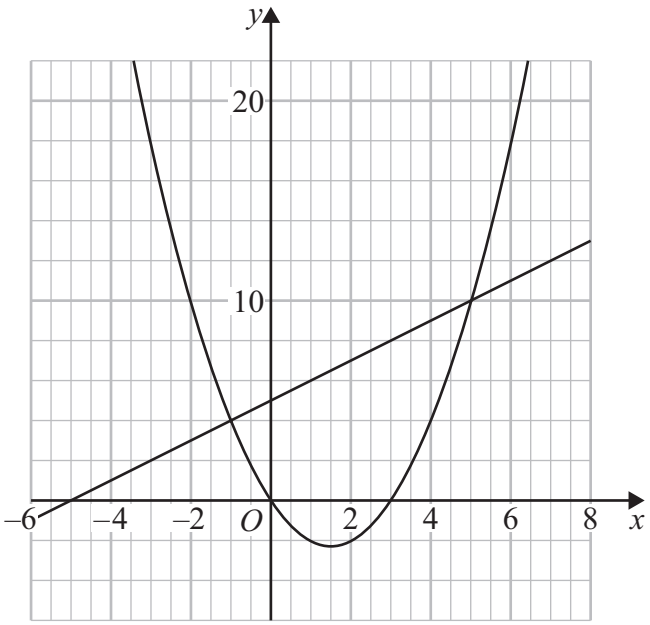


Figure 1

Figure 1 shows a plot of

- the line with equation $y = x + 5$
- the curve with equation $y = x(x - 3)$

On the opposite page there is a copy of Figure 1 labelled Diagram 1.
On Diagram 1 represent the following inequality graphically.

$$x + 5 \leqslant y \leqslant x(x - 3) \quad \text{for} \quad x \geqslant -2$$

(3)

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Question 3 continued

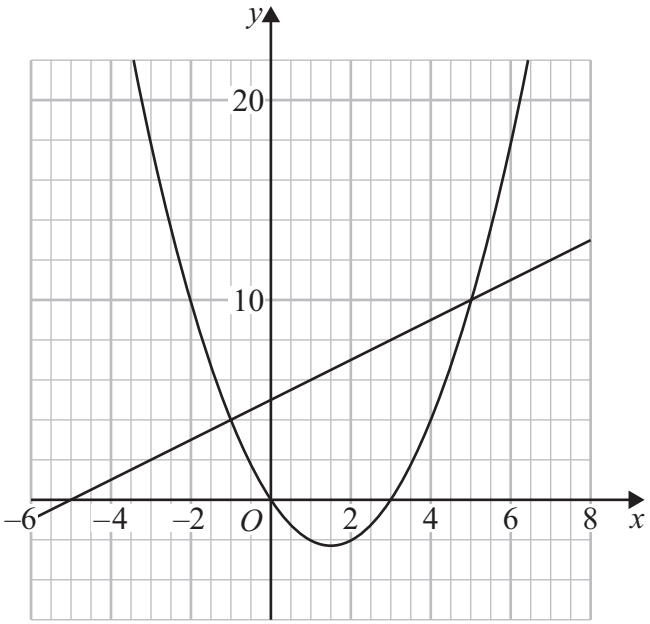


Diagram 1

(Total for Question 3 is 5 marks)

4. **In this question you must show all stages of your working.**
Solutions relying on calculator technology are not acceptable.

The point $A(-1, 8)$ and the point $B(7, 2)$ lie on the line L_1

(a) Find an equation for L_1 in the form $ax + by + c = 0$, where a, b and c are integers.

(3)

The line L_2

- passes through A and is perpendicular to L_1
- cuts the x-axis at the point C

(b) Find the coordinates of C.

(3)

(c) Hence find the area of triangle ABC.

(3)

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