A council is setting aside an area of land to create six fenced plots where local residents can grow their own food.

Each plot will be a rectangle measuring x metres by y metres as shown in the diagram.
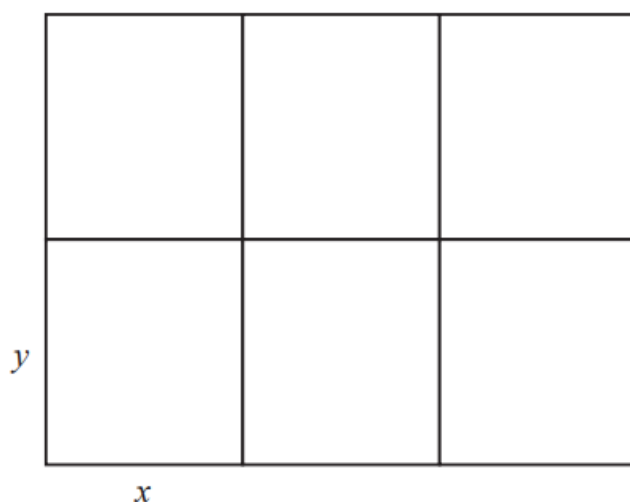
(a) The area of land being set aside is 108 m^2.

Show that the total length of fencing, L metres, is given by

$$L(x) = 9x + \frac{144}{x} .$$

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(b) Find the value of x that minimises the length of fencing required.

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Answers:

(a)   Proof. See marking instructions.

(b) $x = 4$