

**3 In this question you must show detailed reasoning.**

A gardener is planning the design for a rectangular flower bed. The requirements are:

- the length of the flower bed is to be 3 m longer than the width,
- the length of the flower bed must be at least 14.5 m,
- the area of the flower bed must be less than  $180\text{ m}^2$ .

The width of the flower bed is  $x$  m.

By writing down and solving appropriate inequalities in  $x$ , determine the set of possible values for the width of the flower bed.

**[6]**