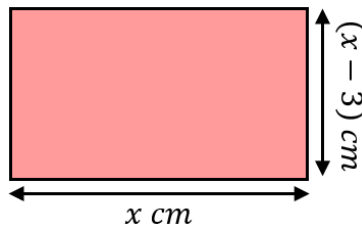


## Solving Quadratic Inequalities in Context

**(a)**

A rectangle has sides of length  $x$  cm and width  $(x - 3)$  cm, as shown. If the area of the rectangle is greater than  $10$  cm<sup>2</sup>:

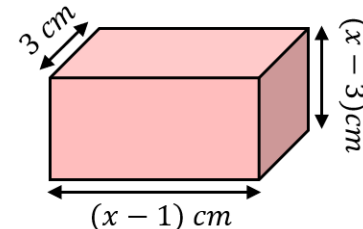


(i) Show that  $x^2 - 3x - 10 > 0$

(ii) Find the range of possible values of  $x$ .

**(b)**

A cuboid has dimensions of  $3$  cm,  $(x - 1)$  cm and  $(x - 3)$  cm, as shown. If the volume of the cuboid is greater than  $45$  cm<sup>3</sup>:

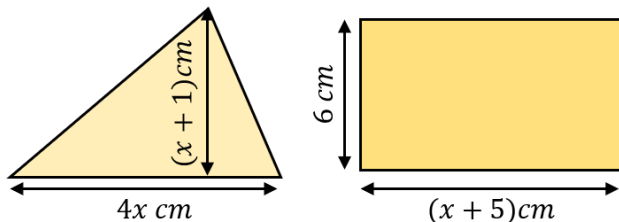


(i) Show that  $x^2 - 4x - 12 > 0$

(ii) Find the range of possible values of  $x$ .

**(c)**

Given that the area of the rectangle is greater than the area of the triangle, find the range of possible values of  $x$ .



**(d)**

A rectangular lawn has a length of  $(2x + 1)$  m and a width of  $(x + 4)$  m, as shown. Given that the area of the lawn is less than  $49$  m<sup>2</sup>, find the range of possible values of  $x$ .

