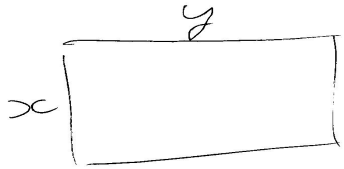

(a) Perim = 40 $\therefore$ $x + y = 20$ so $y = 20 - x$

i.e. If width is x then length is $20 - x$

(b) $A = x(20 - x)$ width × length

(c) $x(20 - x) = 96$

$20x - x^2 = 96$

Re-arrange then swap sides

$x^2 - 20x + 96 = 0$

$(x - 12)(x - 8) = 0$

$\therefore$ $x = 12$ or $x = 8$

if $x = 12$ then $y = 8$

if $x = 8$ then $y = 12$

$\therefore$ dimensions are 12m × 8m