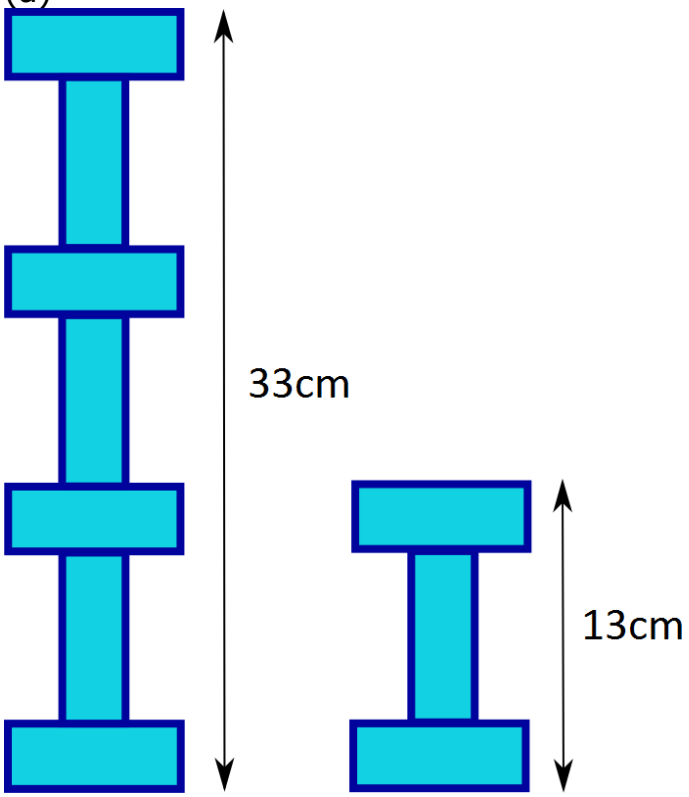
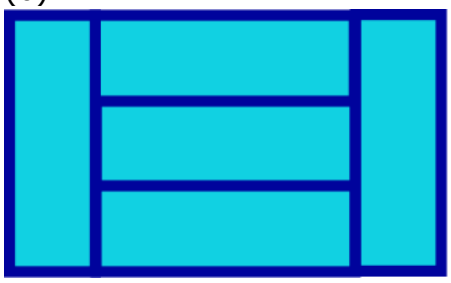
Mastery Perimeter Challenge

In each of the following problems, work out the perimeter of one small rectangle: 

(a)

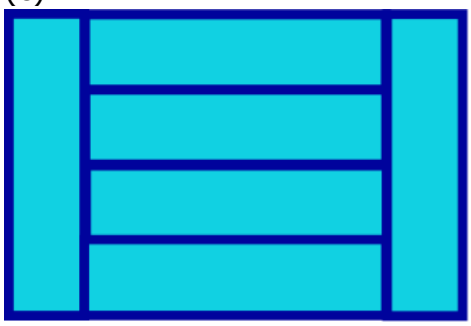


(b)



Area of whole rectangle
$= 60cm^2$

(c)



Area of whole rectangle
$= 600mm^2$

SOLUTIONS:

(a) There are two values: W (the width of the small rectangle) and L (length of the small rectangle).

The height of the $1st$ tower is made of $4W$ and $3L$, which equal 33 ($4W+3L=33$)

The height of the $2nd$ tower is made of $2W$ and only $1L$. They equal 13 ($2W+L=13$)

So If we double the second tower then we will have $4W$ but only $2L$. It will equal 26 ($4W+2L=26$).

Therefore if we take away double the second tower away from the first tower, we will have one length and it will measure $7cm$.

($L=(4W+3L)-(4W+2L)=33-26=7$).

Now that we know what one length is, we can substitute $L=7$ into our equation for the height of tower 2 ($2W+L=13$).

If we take away the 7 we will have $2W=6$. Then you divide both sides of this equation by 2 to find $W=3$.

To work out the perimeter, you will need to add $2W$ and $2L$.

This is $2\times3+2\times7$, equal to $\mathbf{20cm}$.

(b) You can see that there are five rectangles. Since their combined area is $60cm^2$, this means that the area of one of the five rectangles is $12cm^2$.

Then, we can see that the length of one rectangle is the same as three widths. Therefore, the perimeter will be $2+6+2+6$ which is equal to $\mathbf{16cm}$.

(c):If we call the length of the rectangle b and the width a then we can see $4a=b$.

Then the width of the big rectangle is $4a+2a=6a$ and the area is $6a\times4a=24a^2=600$.

Then $a^2=25$

So $a=5mm$

$b=4a=20mm$

and perimeter of rectangle = $\mathbf{50mm}$