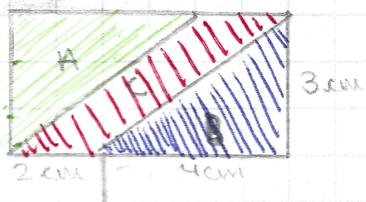
Anirat — Shear Magic

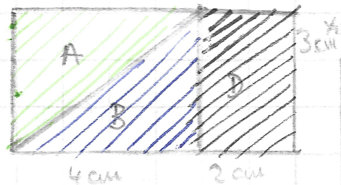
A) Can you use the two pictures below to work out the area of the parallelogram.



$A = \frac{4\times3}{2} = 6\ cm^2$

$B = \frac{4\times3}{2} = 6\ cm^2$

$C = (6\times3) - (A+B) = 6\ cm^2$ (18, 12)

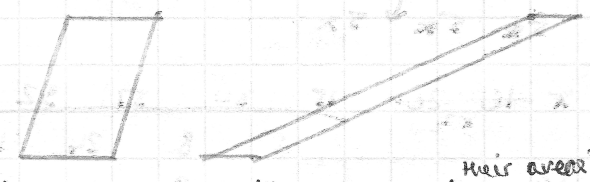


$A = \frac{4\times3}{2} = 6\ cm^2$

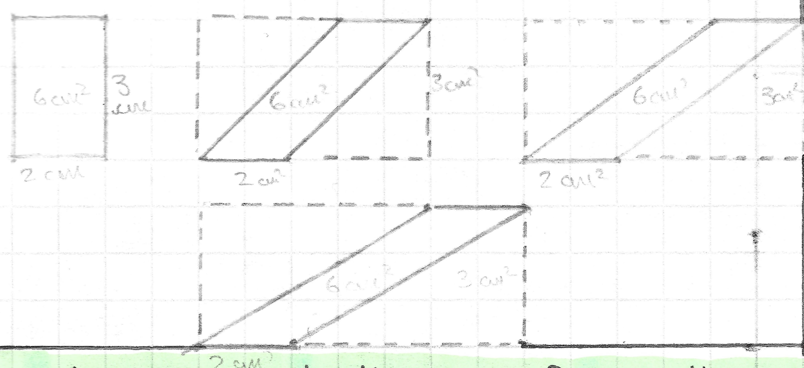
$B = \frac{4\times3}{2} = 6\ cm^2$

$D = 2\times3 = 6\ cm^2$

B) Here are two more parallelograms below to work out the area of the parallelogram.

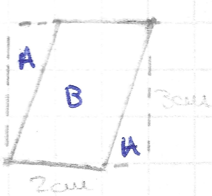


Can you draw similiar diagrams to work out their areas?

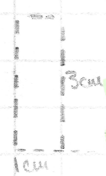


I have noticed, however wide you shear the rectangle, the area stays the same. I think this is because as the parallelogram is sheared the rectangle represented by the dotted line changes in base and height ~~width and length~~; the parallelogram keeps its same core measurements.

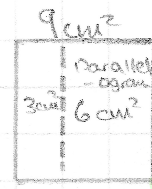
A general rule for solving the area of a parallelogram is base times height because the height is from the top point to the bottom, in this case 3cm.



Another way of thinking about it is the concept a parallelogram is a rectangle

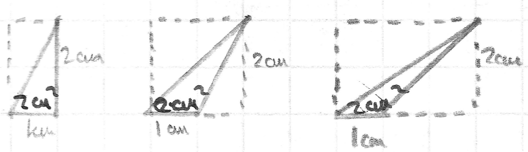


I have joined the 2 A's to form a smaller rectangle, with 3cm²



If the whole area is 9, and the two A's are 3cm², the parallelogram is remaining, thus 6cm²

Also, a parallelogram ~~traingle always~~ consists of 2 equal traingles, and as the formula would be $\frac{b\times h}{2}$, if there were 2 traingles, the formula would be b×h, like a parallelogram



A general rule for working out the area of a traingle is $\frac{b\times h}{2}$, and this rule works because a traingle is half a rectangle, which is b×h, so thus the ½ when solving the area of a traingle.