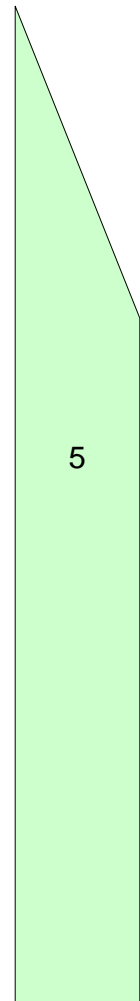
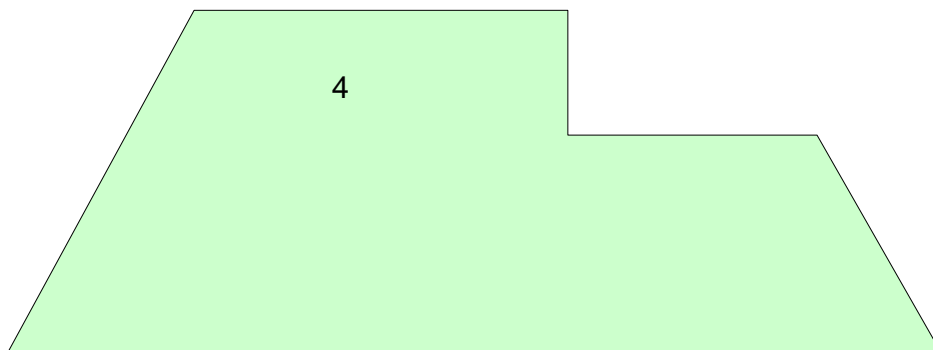
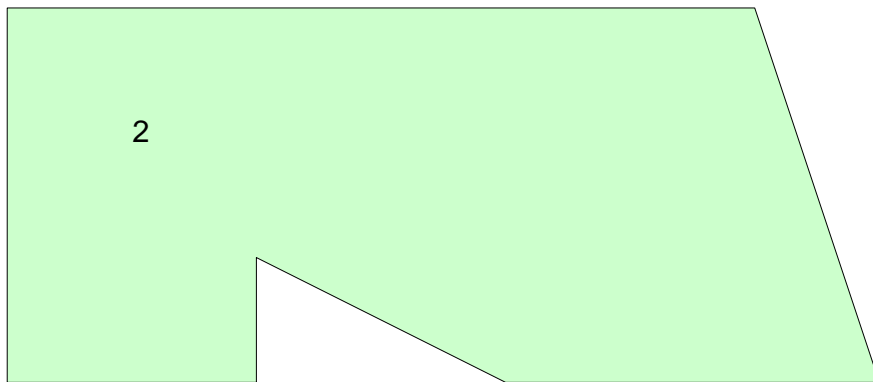
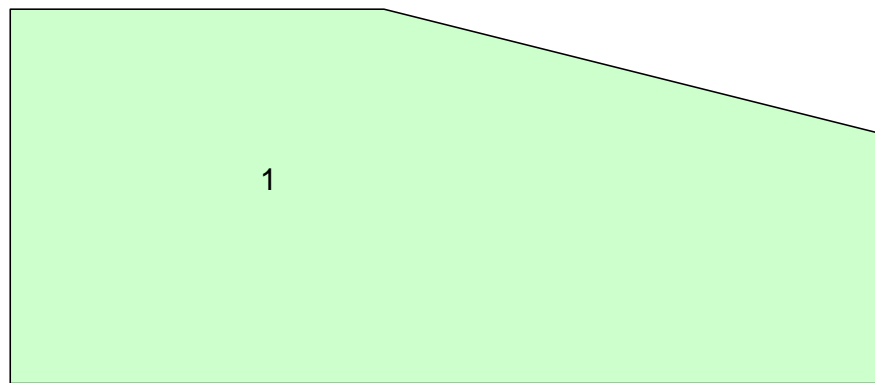
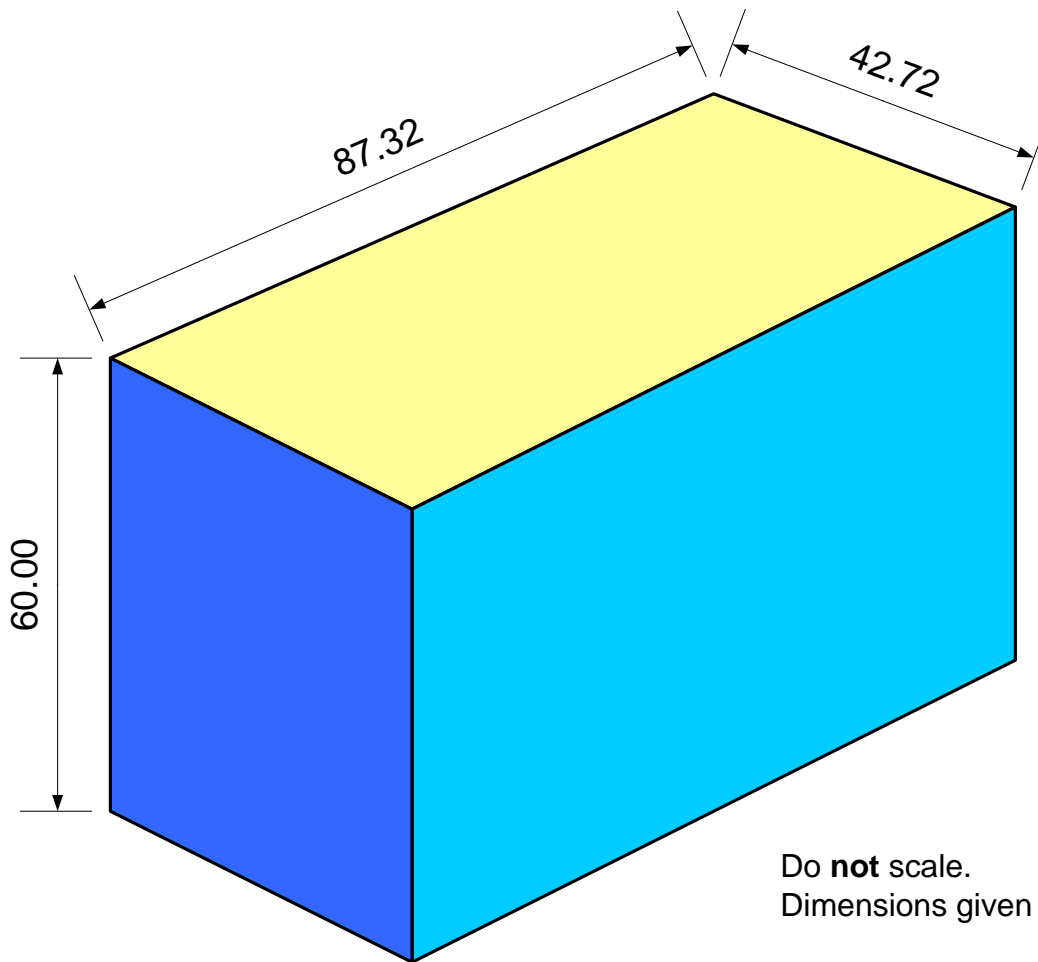


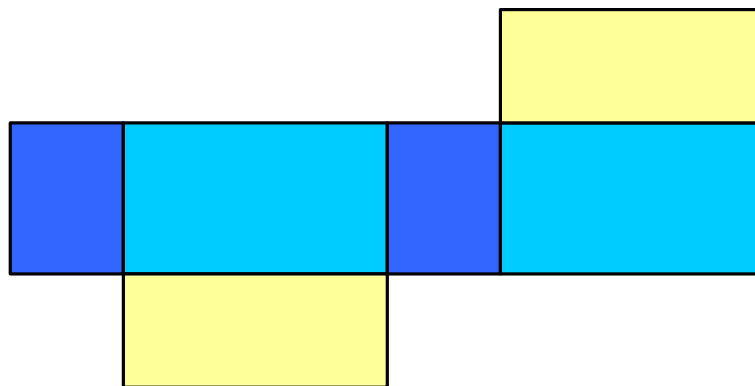
WALT: measure the dimensions of a shape and to calculate its area.



WALT: calculate the surface area of a cuboid.



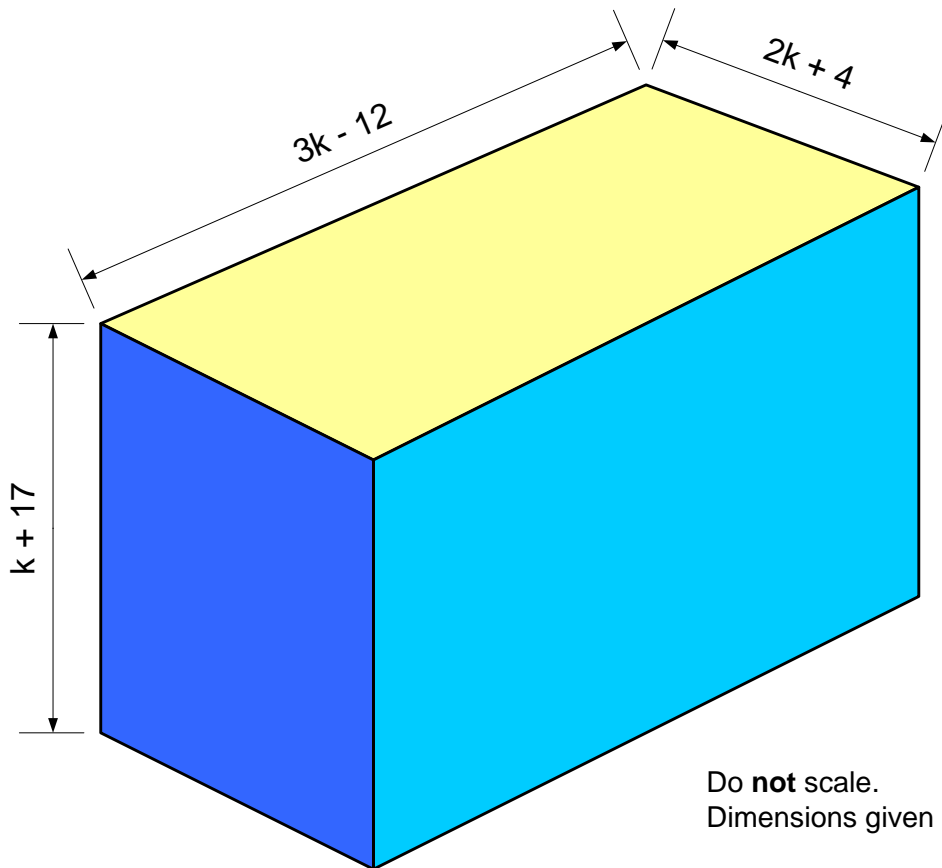
Do **not** scale.
Dimensions given in cm.



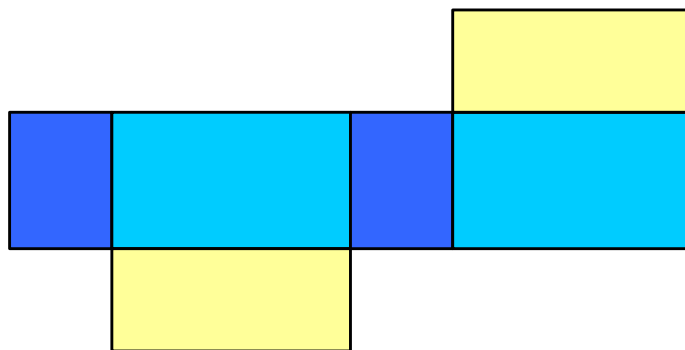
WALT: generate a formula from which to calculate the surface areas of different boxes.

Reminder: Red, Green, Blue, Purple

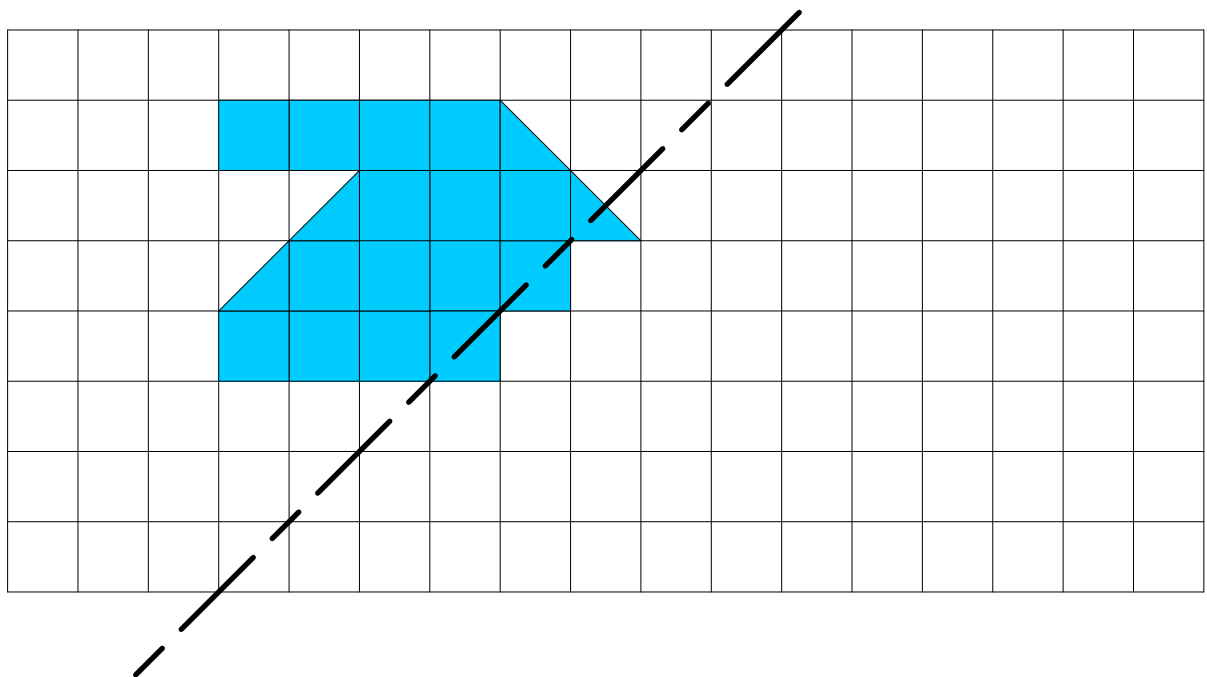
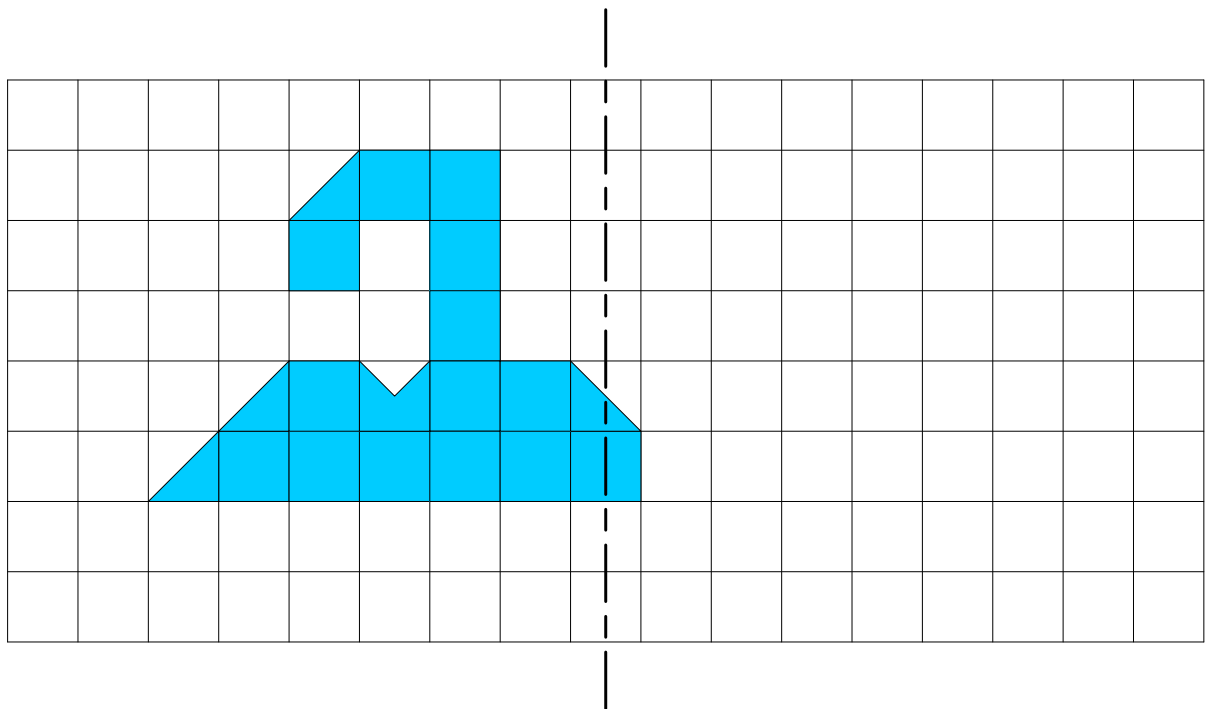
$$(3x + 7)(6x - 2)$$



Do **not** scale.
Dimensions given in cm.

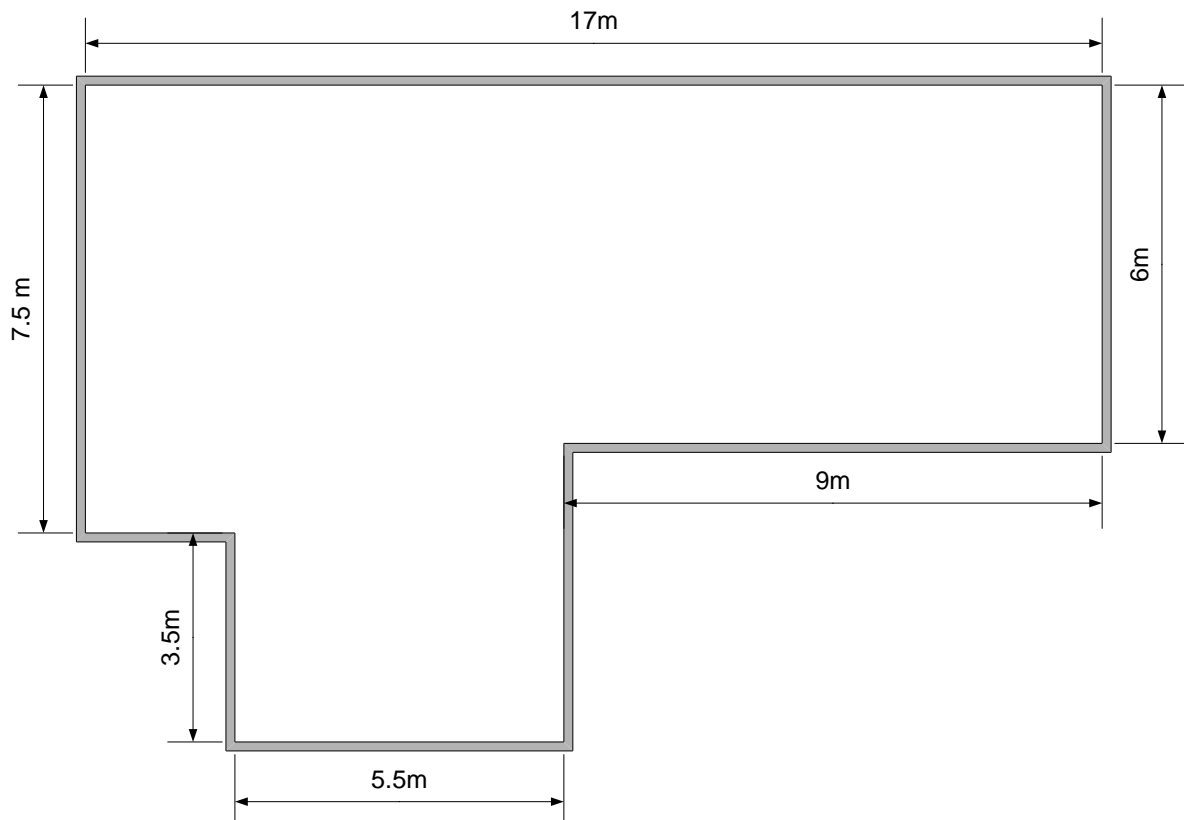


WALT: work out the area of a shape and its reflection by counting squares.



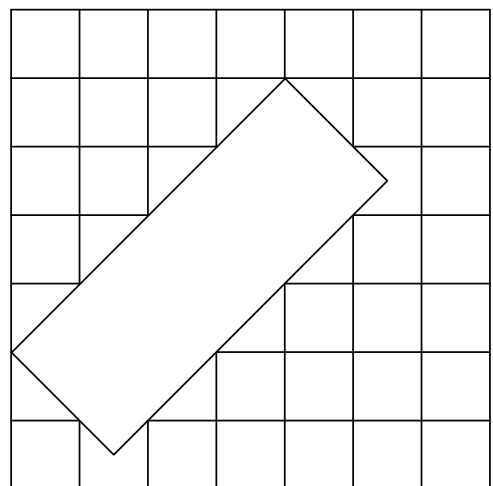
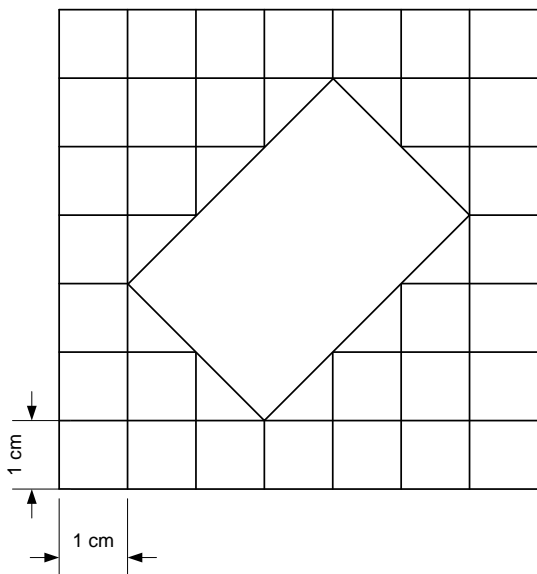
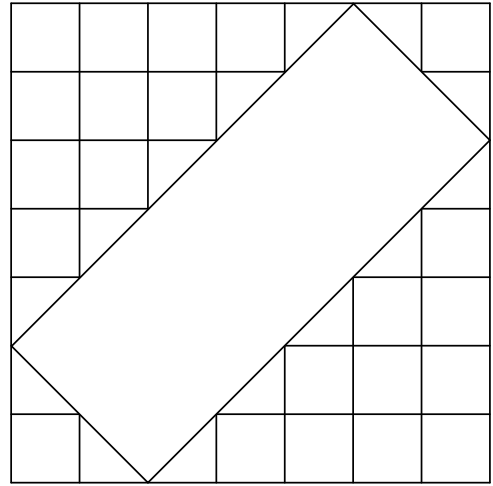
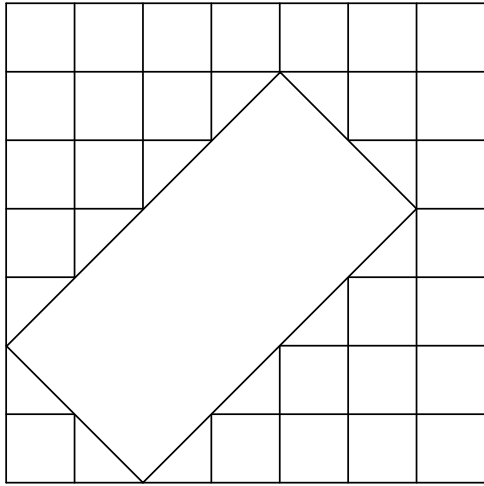
WALT: solve word problems about area.

- 1) Jack was digging a pond. He had a waterproof liner that was 12m long and 8m wide. He dug his pond so that it was 2 m deep.
 - i) What was the area of his liner?
 - ii) The surface of the pond was 10m long and 4m wide. Is John's liner big enough for his pond?
- 2) Emily had to paint her bedroom. Her walls were 2m high and 3m long. The door was 1.6m high and 0.8m wide. Unfortunately, Emily liked pink and so she had to buy some paint that cost £8.95 per tin. One tin only covered 10m^2 . How much money did Emily have to spend on paint?
- 3) Below is a plan of a room. Carpet costs £12 per sq. m.

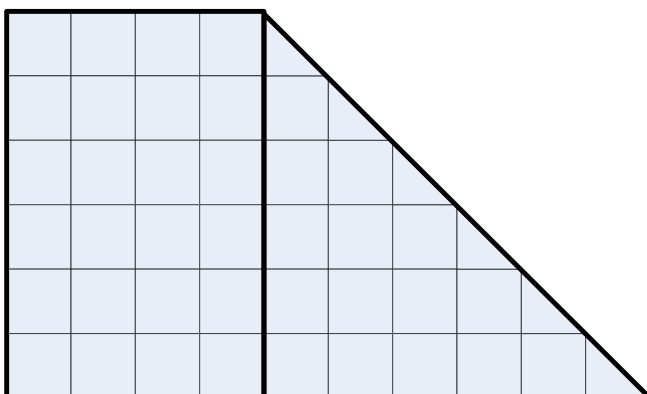
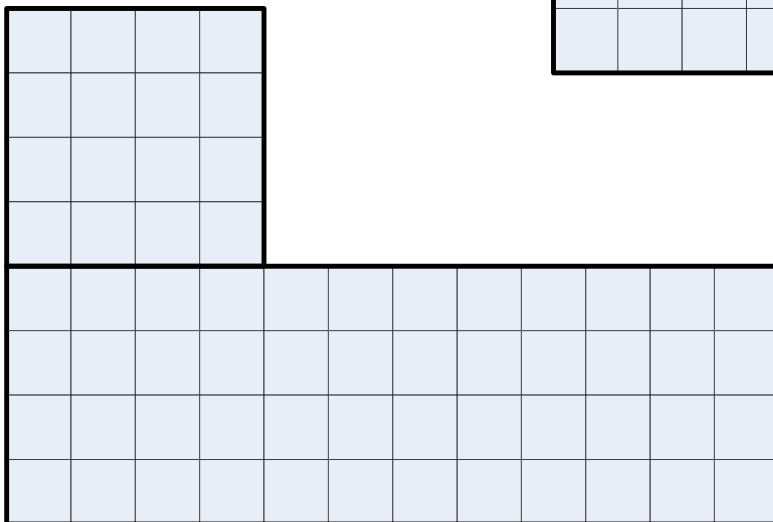
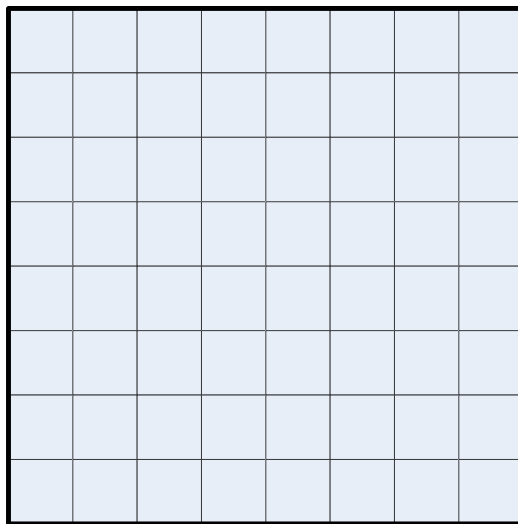
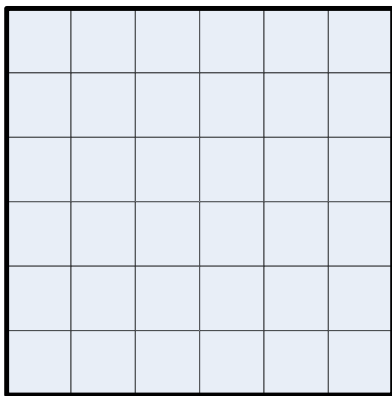
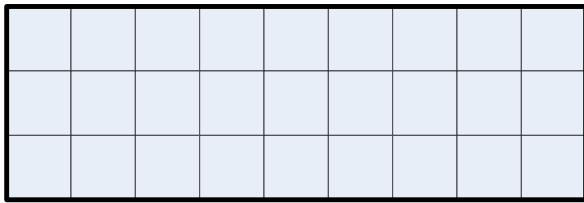


How much does it cost to carpet this room?

WALT: find the area by drawing a grid over the shape.



WALT: find the area by counting squares.



WALT: calculate PI

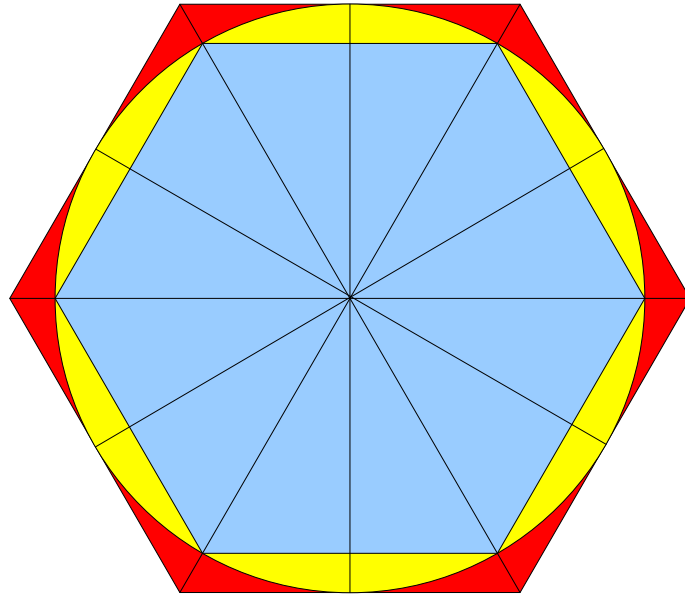
What is Pi?

Pi is a number that says how many times the radius \times radius fits into the area of a circle. It is a proportion or a ratio. Finding Pi has been a problem that mathematicians have been trying to solve since the time of the Ancient Greeks. Archimedes of Syracuse split the circle into 25 triangles and got an estimate of Pi that was accurate to about 5 decimal places. You are going to try to better him!

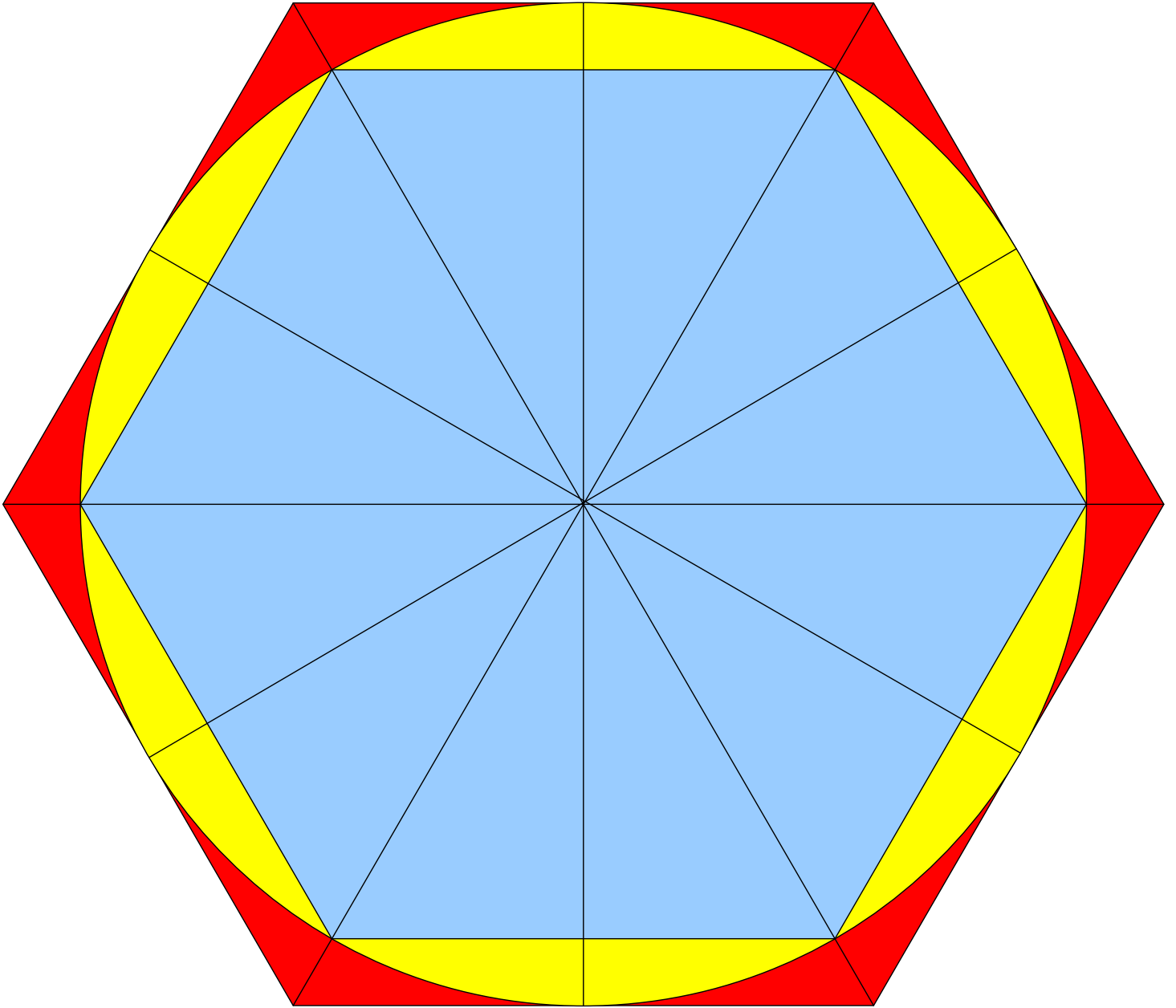
Instructions

You will need a compass, a sharp pencil, a ruler, a protractor and a piece of A3 paper.

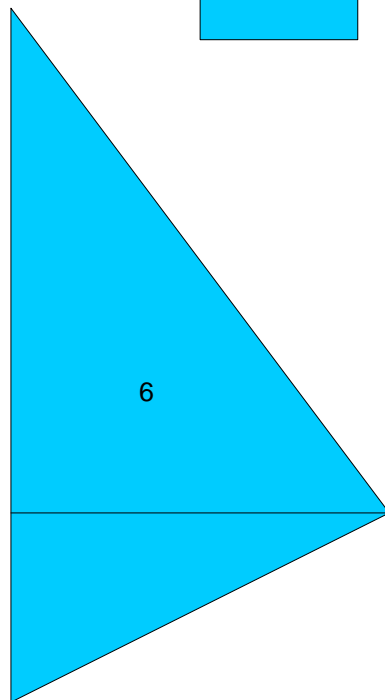
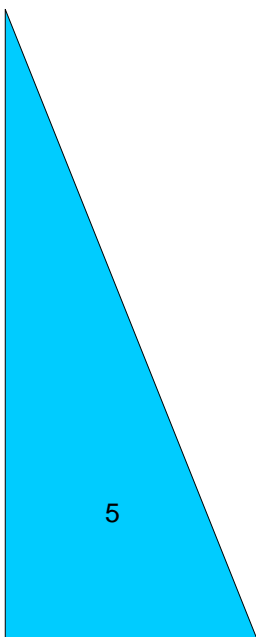
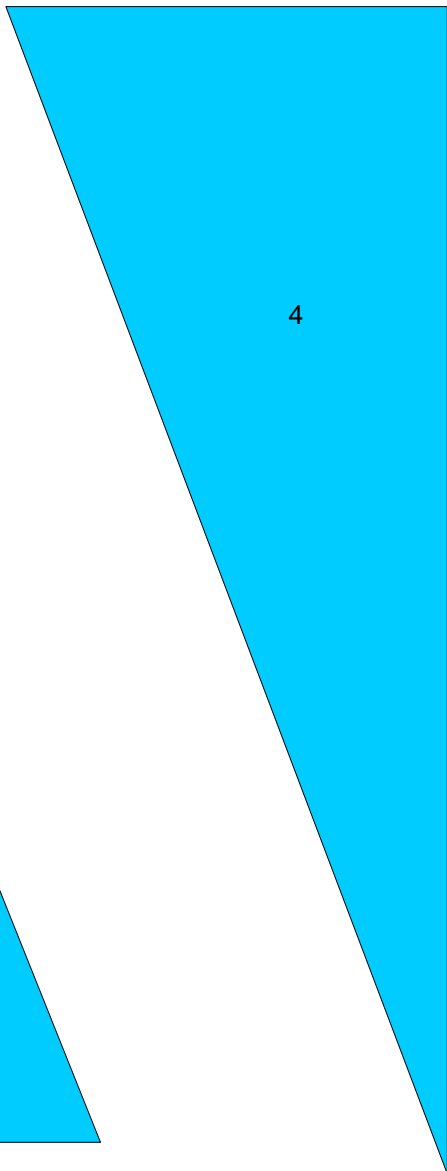
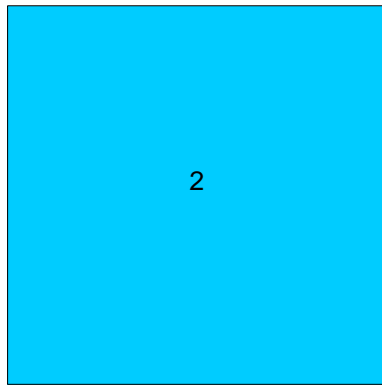
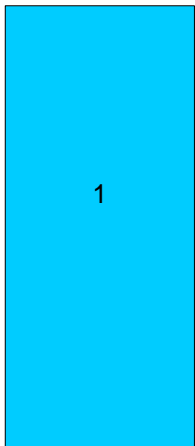
1. Mark a point in the middle of your paper.
2. Draw a circle making it as large as you can.
3. Draw a diameter using a ruler.
4. Decide how accurate you want to make your estimate of Pi and measure the angles from the centre of the circle accordingly using your protractor.
5. Draw in more diameters but extending your lines beyond the circumference.
6. Draw lines from the intersect between your "spokes" and the circumference.
7. Find the halfway point along these lines (called the midway point).
8. Draw a line from the centre to the this midway point.
9. Draw a line from each "spoke" to the next so that it touches the circle at the midpoint.
10. You should end up with something like the picture below.



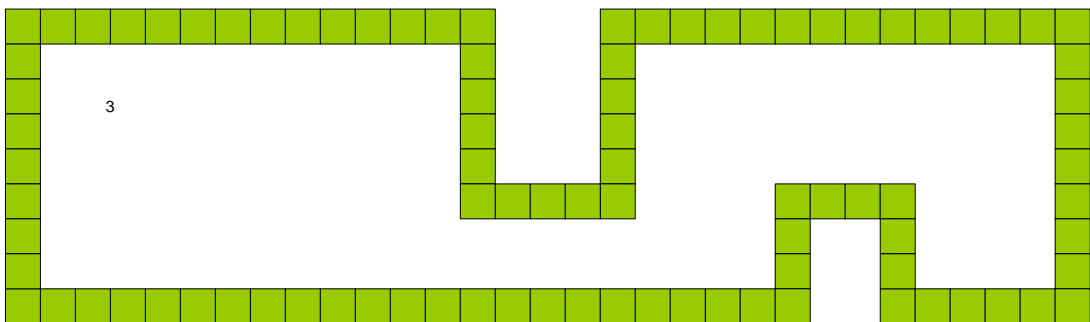
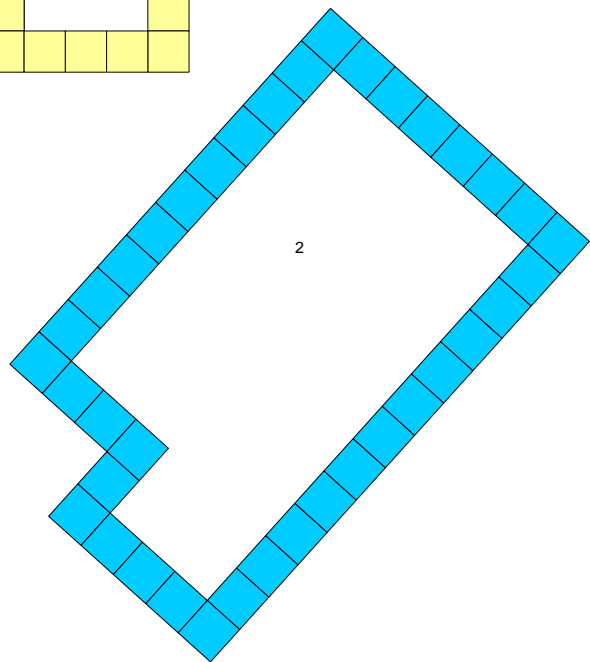
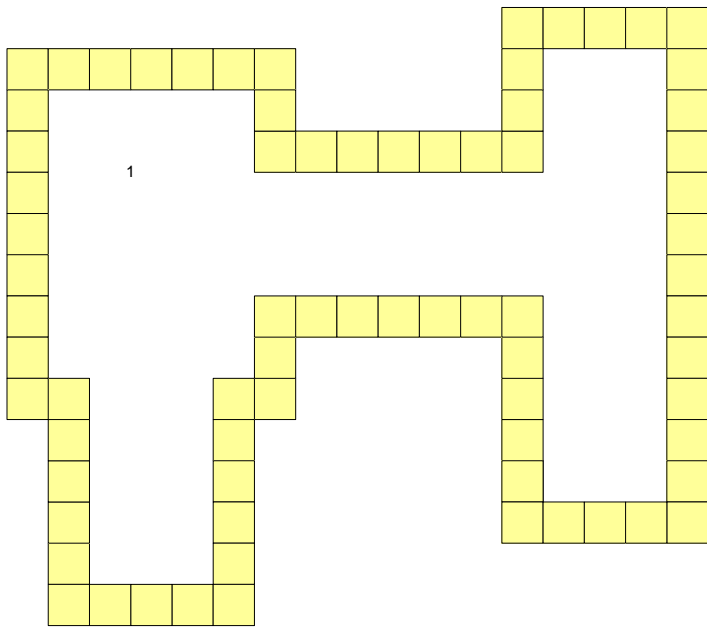
11. Measure the height and base and calculate the area of each triangle.
12. The multiply the area by the number of triangles to find the area of the blue shape and then the area of the red shape.
13. Find the mean average of these two areas which will give you an estimate of the yellow circle.
14. Measure the radius.
15. Square the radius.
16. Divide the estimate of the yellow circle's area by the square of the radius.
17. This is your estimate of Pi.



WALT: measure the lengths and calculate the areas of squares and rectangles.



WALT: find the area of the shape enclosed by these squares.



Assume each square is $1\text{cm} \times 1\text{cm}$.