

Learning for Life.

# Measurement

Substrand: Indirect Measure

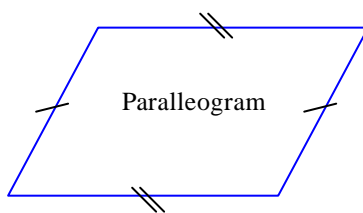
m54w3

In the space provided write a convincing explanation of how you solved the problem. Remember to show clearly all the mathematics used. The answer alone is not enough!

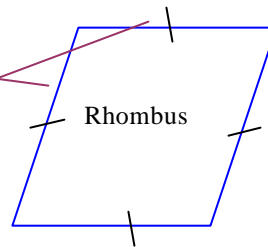
## Areas of Parallelograms

### Background

A **parallelogram** is a four sided figure (or **polygon**) that has two pairs of **parallel** sides. It is described by some as a **rectangle** that has been “tipped“ over (Notice that none of the angles are  $90^\circ$ ). As a **square** is a rectangle that has **congruent** (equal length) sides, a **rhombus** is a parallelogram that has congruent sides.

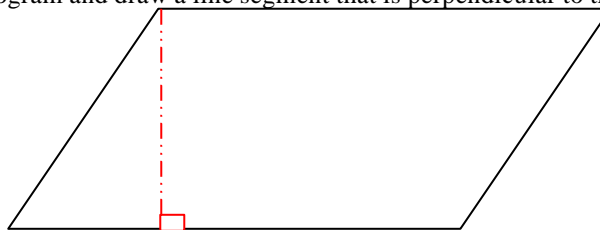


Note the marks on each side that indicate that the line segments are the same length.

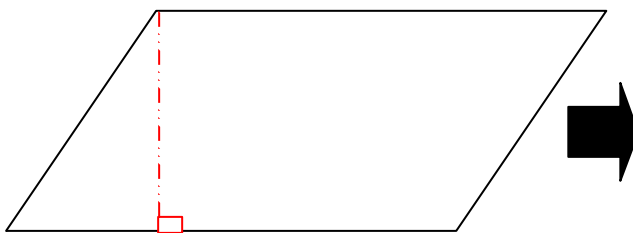


A parallelogram can be easily turned into a rectangle by doing the following.

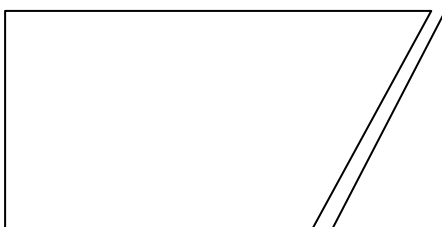
- Step 1- Draw a parallelogram and draw a line segment that is perpendicular to the base.



- Step 2- Cut the triangle off the end.



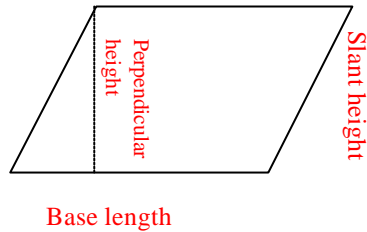
- Step 3- Move the triangle to the other end. Hey presto a rectangle.



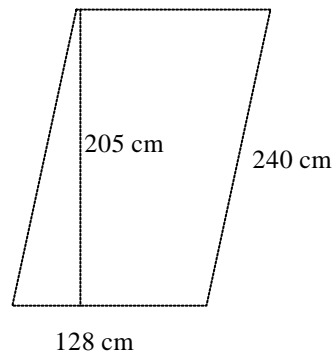
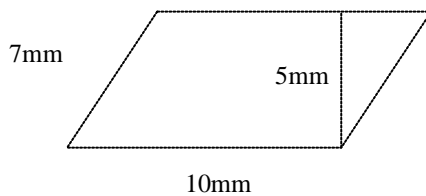
## Task

1. Prove the theory above by doing it yourself. That is turn a parallelogram into a rectangle by drawing the shape and cutting it to form a rectangle, glue this onto the sheet.
2. If the formula for the area of a rectangle is

**Area of a rectangle = length x width** then what is the formula for the area of a parallelogram. The picture below may help.



3. Find the area of the following.



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### Reflection:

- Write down some of the difficulties that you had to overcome to solve this problem.
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