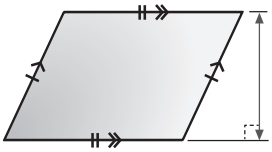
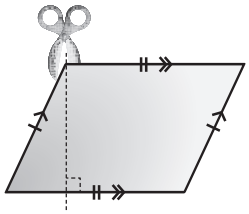
Area: Parallelograms

Parallelograms have opposite sides equal in length and parallel (always the same distance apart).

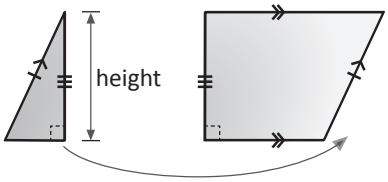


The shortest distance between a pair of parallel sides is called the perpendicular height

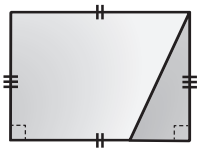
We can make them look like a rectangle by cutting the triangle off one end and moving it to the other.



Parallelogram



move triangle cut off



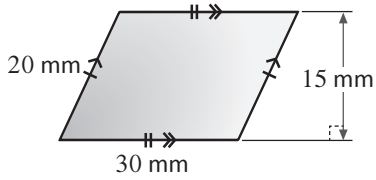
Rectangle

$\therefore$ Area of a parallelogram = Area of the rectangle formed after moving triangle

$= \text{length} \times \text{perpendicular height}$ units^2

$= l \times h$ units^2

Calculate the area of these parallelograms

(i) 

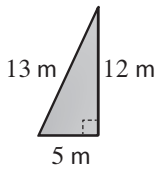
Area $=$ length $\times$ height

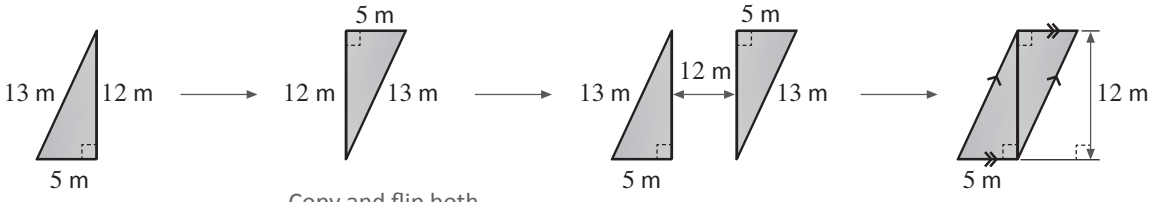
$= 30\text{ mm} \times 15\text{ mm}$

$= 450\text{ mm}^2$

A parallelogram can also be formed joining together two identical triangles.

(ii) Find the area of the parallelogram formed using two of these right angled triangles:





Area $= 2 \times$ area of the triangle

$= 2 \times \frac{1}{2} \times 5\text{ m} \times 12\text{ m}$

$= 60\text{ m}^2$

OR

Area $=$ length $\times$ perpendicular height

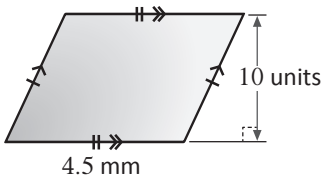
$= 5\text{ m} \times 12\text{ m}$

$= 60\text{ m}^2$

Area: Parallelograms

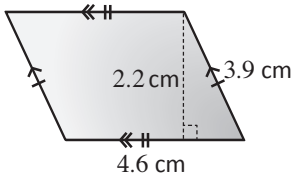
1 Complete the area calculations for these parallelograms:

a



Area = ☐ × ☐ units^2
length height
= ☐ units^2

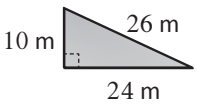
b



Area = ☐ × ☐ cm^2
length height
= ☐ cm^2

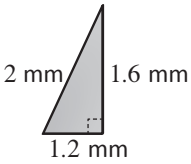
2 Calculate the area of the parallelograms formed using these triangles.

a



Area = ☐ m^2

b



Area = ☐ mm^2

3 Fill the grid below with as many **different** parallelograms as you can which have an area of 4 units^2.