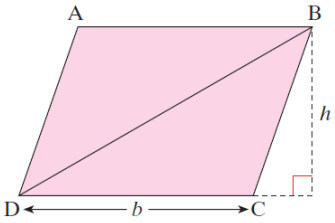
Geometry 1

chapter 3

Section 3.2 Theorems involving triangles and parallelograms

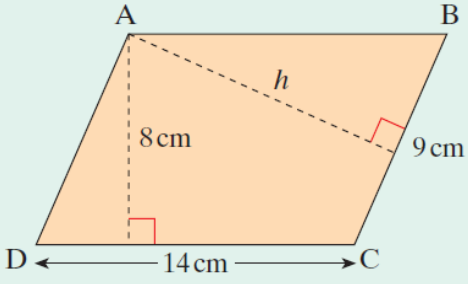
PROJECT MATHS – STRAND 2
Text & Tests 4
LEAVING CERTIFICATE
HIGHER LEVEL



Theorem 18
Area of a parallelogram is the base multiplied by the perpendicular height.

Example 1

(i) Find the area of the given parallelogram ABCD.
(ii) If |BC| = 9 cm, find the perpendicular height, h, from A to [BC].



(i) Area $= (14)(8) = 112$

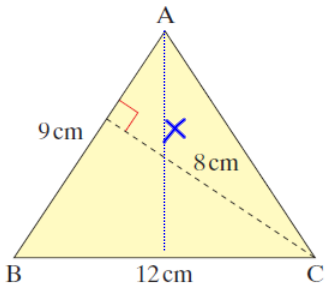
$A = Bh$

(ii) also Area $= 9h = 112$

$h = \frac{112}{9} = 12.44$

Exercise 3.2

1. In the given triangle, |AB| = 9 cm, |BC| = 12 cm and the perpendicular height from C to [AB] is 8 cm.
Find (i) the area of the triangle ABC
(ii) the perpendicular distance from A to [BC].



(i) $\triangle = \frac{Bh}{2} = \frac{(9)(8)}{2} = 36 \text{ cm}^2$

(ii) $x = ?$

$\triangle = \frac{Bh}{2} \Rightarrow \frac{12x}{2} = 36$

$6x = 36$

$x = 6$

5. (i) Name the largest and smallest angle in △ABC. Give reasons for your answers.
(ii) If [AB] and [BC] are fixed at 5 cm and 10 cm respectively, what is the range of possible lengths of [AC]?