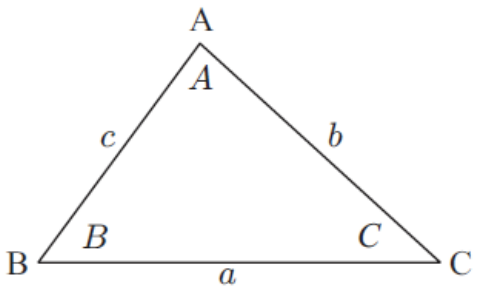
Unit 9 Non-right Triangles (9A) Date _____

Law of Cosines (see page 217 for proofs)

1) If we know two side lengths and the included angle, then we can determine the missing side length from:

$c^2 =$ _____



2) If we know all 3 side lengths then we can determine any angle as well:

$\cos(C) =$

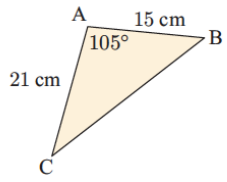
Example: In triangle ABC, $\overline{AB} = 7cm, \overline{BC} = 5\ cm\ and\ \overline{AC} = 8\ cm$

a) Find the measure of $\angle ACB$ b) Find the exact area of the triangle

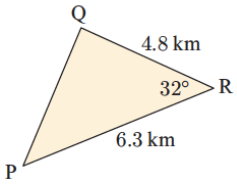
Classwork:

1 Find the length of the remaining side in the given triangle:

a

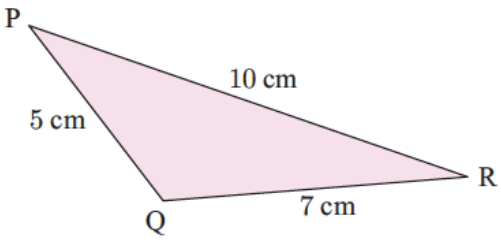


b



3 **a** Find the measure of obtuse $\widehat{PQR}$.

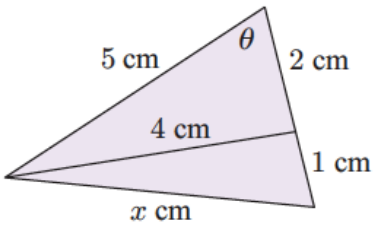
b Hence find the area of $\triangle PQR$.



4 **a** Find the smallest angle of a triangle with sides 11 cm, 13 cm, and 17 cm.

5 **a** Find $\cos\theta$ but not θ.

b Find the value of x.



6 Find the exact value of x in each of the following diagrams: