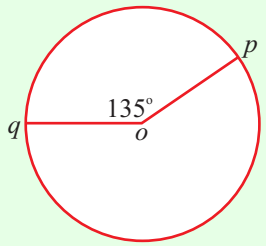
# TRIGONOMETRY (Q 5, PAPER 2)

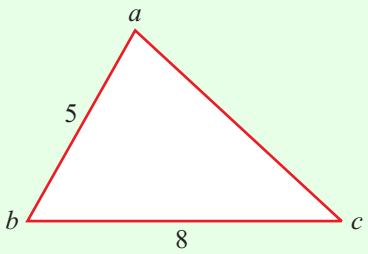
## 2005

5 (a) A circle has centre $o$ and radius 14 cm.
$p$ and $q$ are two points on the circle and
$|\angle qop| = 135^\circ$.
Find the length of the shorter arc $pq$.
Take $\pi = \frac{22}{7}$.



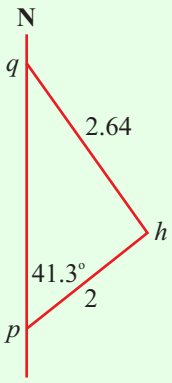

(b) In the triangle $abc$, $|ab| = 5$ cm and $|bc| = 8$ cm.
The area of the triangle is 16.58 cm$^2$.
(i) Find $|\angle abc|$, correct to the nearest degree.

(ii) Find $|ac|$, correct to the nearest centimetre.




(c) A lighthouse, $h$, is observed from a ship sailing a straight course due North.
The distance from $p$ to $h$ is 2 km and the bearing of the lighthouse from $p$ is N 41.3° E.
The distance from $q$ to $h$ is 2.64 km.
(i) Find the bearing of the lighthouse from $q$.

(ii) The ship is sailing at a speed of 19 km/h.
Find, correct to the nearest minute, the time taken to sail from $p$ to $q$.




**ANSWERS**

5 (a) 33 cm
(b) (i) 56° (ii) 7 cm
(c) (i) S 30° E (ii) 12 minutes