TIIGONOMETRY (Q 5, PAPER 2)

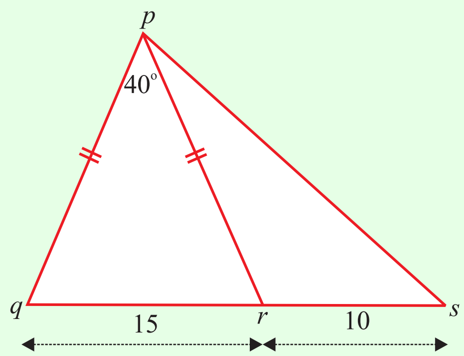
LESSON NO. 6: MORE DIFFICULT TRIANGLES

2007

5 (c) In the triangle pqr,
$|pq| = |pr|$, $|qr| = 15$ cm and $|rpq| = 40°$.

(i) Find $|pr|$, correct to the nearest centimetre.

(ii) s is a point on qr such that $|rs| = 10$ cm.
Find $|ps|$, correct to the nearest centimetre.

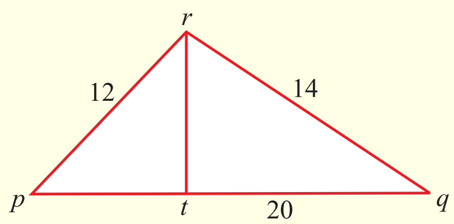


2006

5 (c) The lengths of the sides of the triangle pqr are
$|pq| = 20$, $|qr| = 14$ and $|pr| = 12$.

(i) Find $|\angle rpq|$, correct to one decimal place.

(ii) Find $|rt|$, where $rt \perp pq$. Give your answer correct to the nearest whole number.

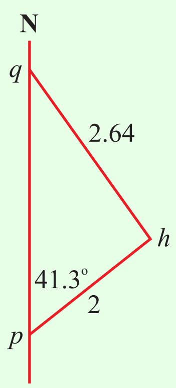


2005

5 (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.

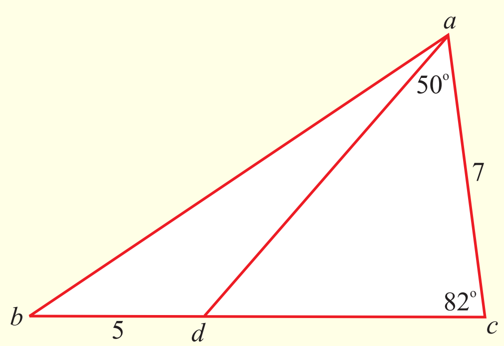


2004

5 (c) In the triangle abc, d is a point on $[bc]$.
$|bd| = 5$ cm, $|ac| = 7$ cm,
$|\angle dca| = 82°$ and $|\angle cad| = 50°$.

(i) Find $|dc|$, correct to the nearest cm.

(ii) Find $|ab|$, correct to the nearest cm.

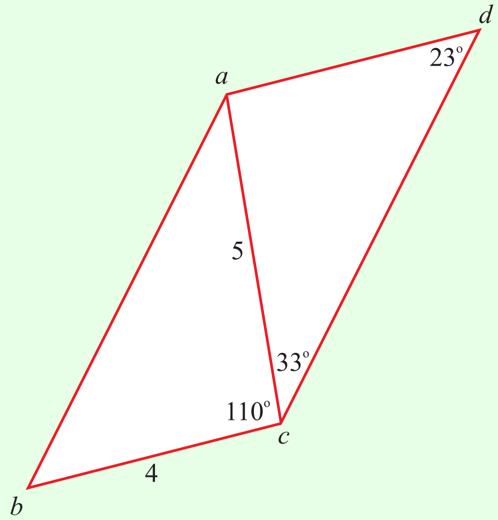


2002

5 (c) In the quadrilateral $abcd$, $|ac| = 5$ units, $|bc| = 4$ units, $|\angle bca| = 110^\circ$, $|\angle acd| = 33^\circ$ and $|\angle cda| = 23^\circ$.

(i) Calculate $|ab|$, correct to two decimal places.

(ii) Calculate $|cd|$, correct to two decimal places.

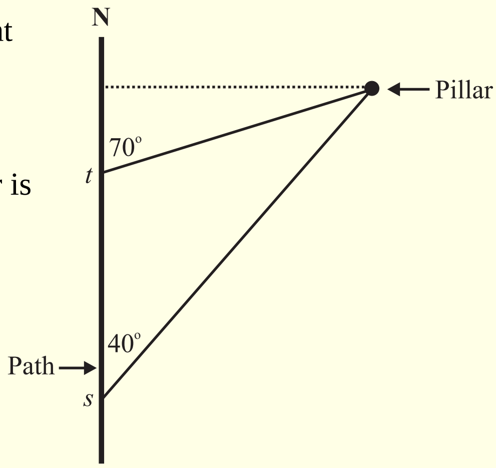


2001

5 (c) s and t are two points 300 m apart on a straight path due north.
From s the bearing of a pillar is N40°E.
From t the bearing of the pillar is N70°E.

(i) Show that the distance from t to the pillar is 386 m, correct to the nearest metre.

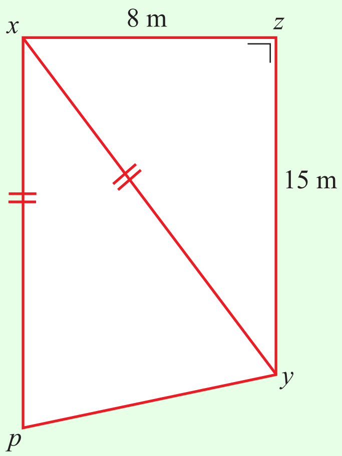
(ii) Find the shortest distance from the path to the pillar, correct to the nearest metre.



2000

5 (c) (i) In the diagram, the triangle zxy is right-angled.
$|zx| = 8$ m and $|zy| = 15$ m.
Find $|xy|$.

(ii) xp is parallel to zy.
$|xp| = |xy|$, as shown.
Calculate $|py|$, correct to the nearest metre.



1998

5 (c) Three ships are situated in a straight line at points a, b and c.
p is a port such that

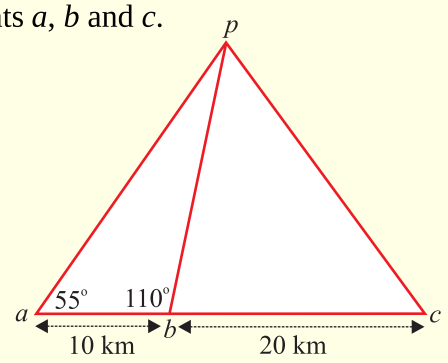
$|\angle bap| = 55^\circ$, $|\angle abp| = 110^\circ$,

$|ab|$ = 10 km and $|bc|$ = 20 km.

Calculate

(i) $|bp|$, correct to the nearest km

(ii) $|cp|$, correct to the nearest km.



1997

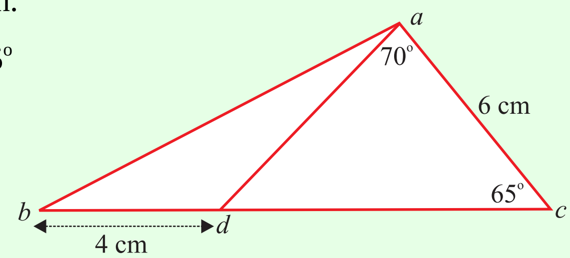
5 (c) abc is a triangle and $d \in [bc]$, as shown.

If $|bd|$ = 4 cm, $|ac|$ = 6 cm, $|\angle acd| = 65^\circ$

and $|\angle dac| = 70^\circ$, find

(i) $|dc|$, correct to the nearest cm

(ii) the area of triangle abc, correct to the nearest cm^2.



Answers

2007	5	(c) (i) 22 cm	(ii) 27 cm
2006	5	(c) (i) $43{\cdot}5^\circ$	(ii) 8 units
2005	5	(c) (i) S 30° E	(ii) 12 minutes
2004	5	(c) (i) 7 cm	(ii) 13 cm
2002	5	(c) (i) 7·39 cm	(ii) 10·61 cm
2001	5	(c) (ii) 363 m	
2000	5	(c) (i) 17 m	(ii) 8 m
1998	5	(c) (i) 32 km	(ii) 31 km
1997	5	(c) (i) 8 cm	(ii) 33 cm^2