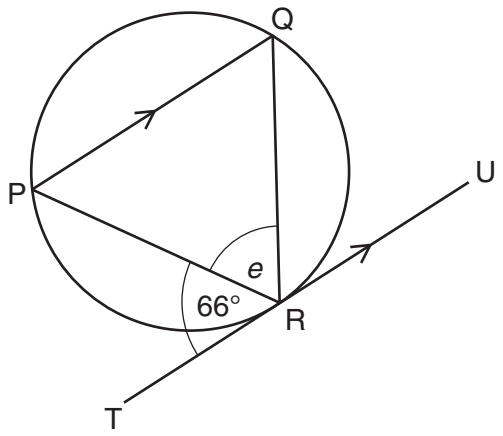
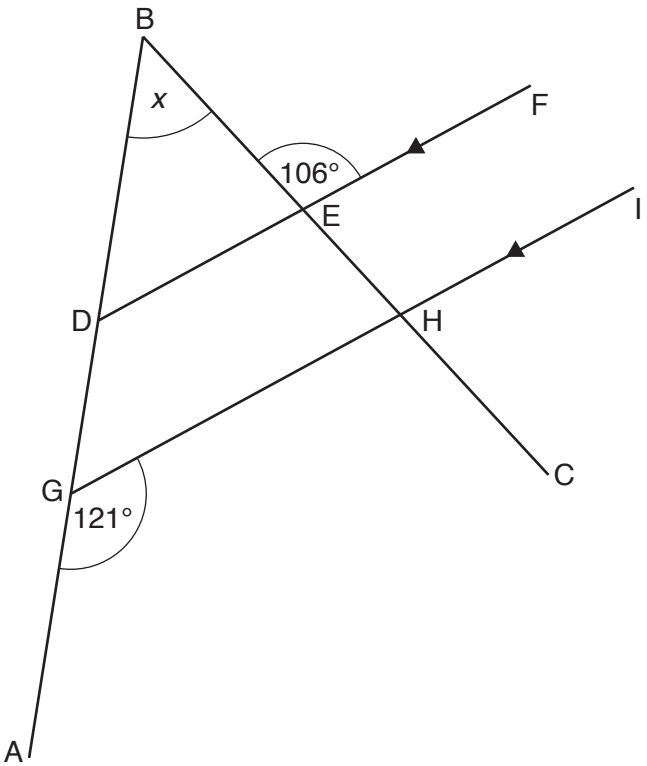
1 Chord PQ is parallel to tangent TRU.



Not to scale

Calculate the size of angle *e*.
Give a geometrical reason for each stage of your working. **[5]**

2 The diagram is made from four straight lines. DEF and GHI are parallel.



Not to scale

Calculate the size of angle *x*.
Give a reason for each stage of your working.

..... ° **[5]**

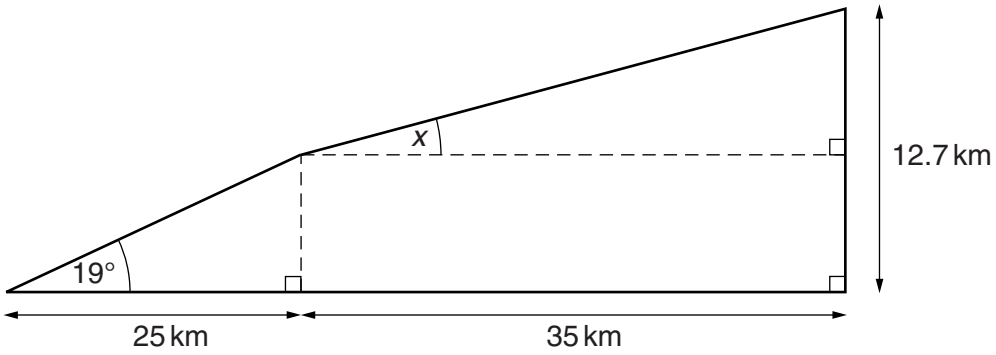
3 An aircraft flew from Amsterdam to Singapore.

(a) On the flight there were 325 passengers.
The ratio adults : children on this flight was 23 : 2.

How many children were on this flight?

(a) _____ **[2]**

(b) As the aircraft left Amsterdam, at sea level, it climbed at an angle of 19° to the horizontal until it was above a point 25 km from Amsterdam.
It then changed the angle of climb until its height above sea level was 12.7 km.
The aircraft was then above a point a further 35 km from Amsterdam, as shown in the diagram.

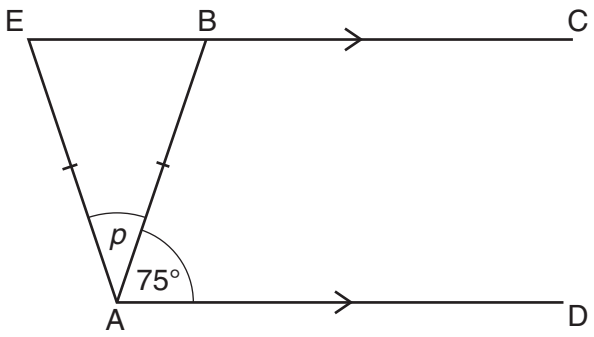


Not to scale

Calculate *x*, the angle of climb on the second stage of its journey.
Show your method clearly.

(b) _____ ° **[5]**

4 EBC is parallel to AD.
Triangle ABE is isosceles with AE = AB.
Angle BAD is 75°.

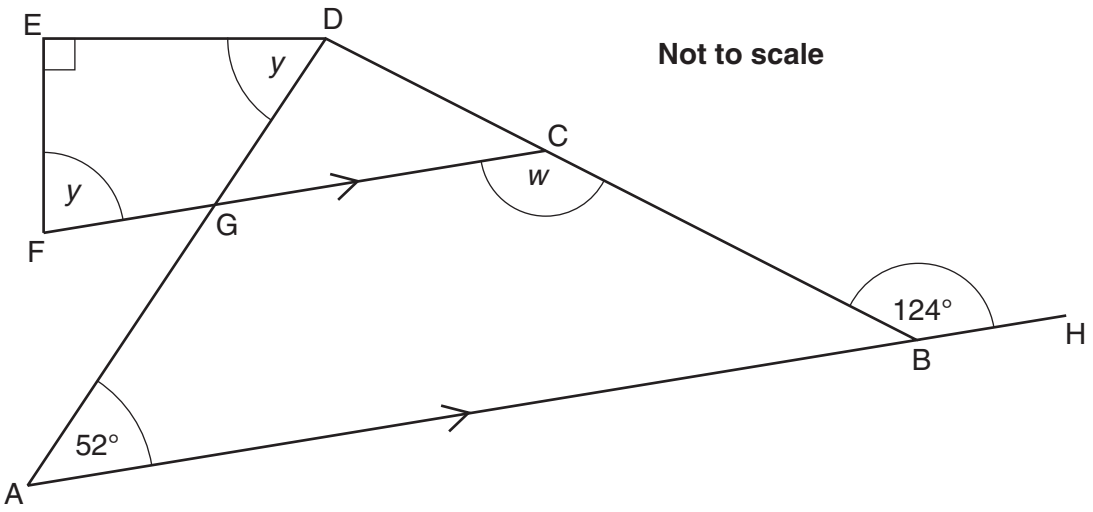


Not to scale

Work out the size of angle *p*.

_____ ° **[3]**

5 ABH and FGC are parallel straight lines.
Angle GFE = angle GDE = *y*.
Angle DEF = 90°.



(a) (i) Write down the size of angle *w*.

(a)(i) _____ ° **[1]**

(ii) Give a reason for your answer.

_____

_____ **[1]**

(b) Work out the size of angle *y*.
Show your working clearly.

(b) _____ ° **[4]**