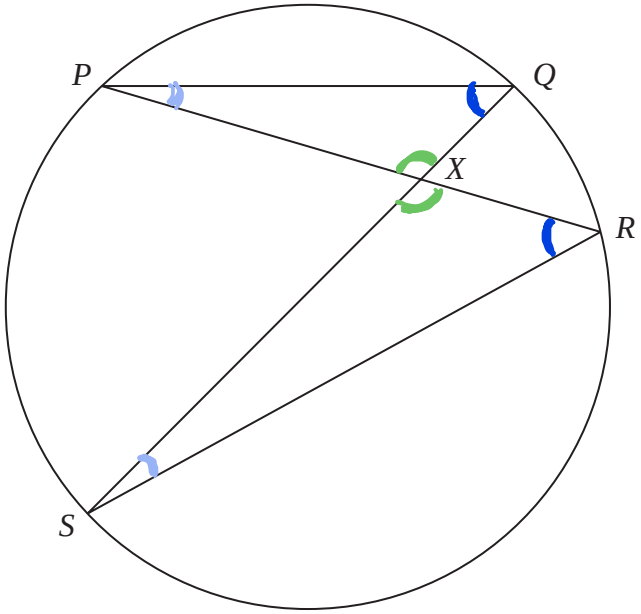
1 *P*, *Q*, *R* and *S* are four points on a circle.



PXR and *SXQ* are straight lines.

Prove that triangle *PQX* and triangle *SRX* are similar.

$\angle PQX = \angle SRX$ angles in the same segment are equal (1)

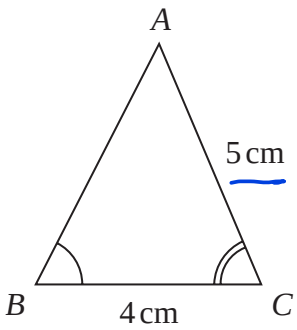
$\angle QPX = \angle RSX$ angles in the same segment are equal

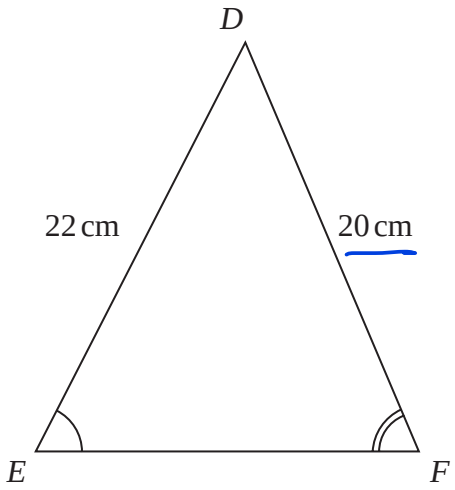
$\angle PXQ = \angle SXR$ vertically opposite angles are equal (1)

All three angles are equal so the triangles are similar. (1)

(Total for Question 1 is 3 marks)

2 Triangle *ABC* and triangle *DEF* are similar.





(a) Work out the length of *EF*.

Find scale factor:

$\frac{20\text{ cm}}{5\text{ cm}} = 4$ (1)

$EF = 4BC$
$= 4 \times 4$
$= 16$

(1)

16 cm

(2)

(b) Work out the length of *AB*.

$DE = 4AB$

$22 = 4AB$

$AB = \frac{22}{4} = 5.5$ (1)

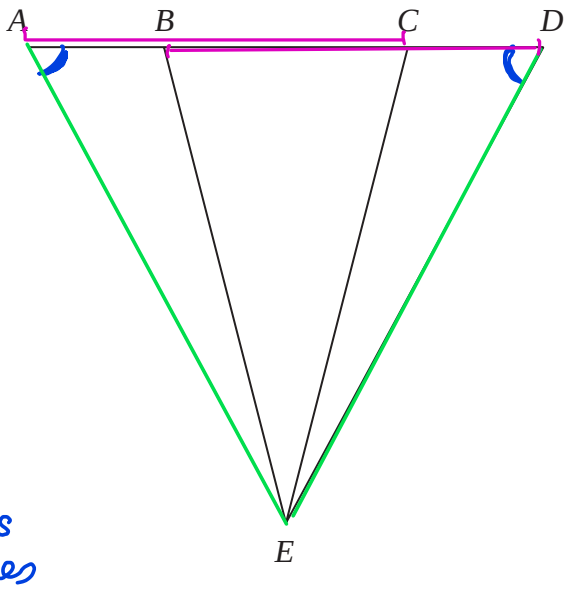
(1)

5.5 cm

(2)

(Total for Question 2 is 4 marks)

3 The diagram shows a triangle *ADE*.



∴ ADE is isocoles

$AE = DE$

$AB : BC : CD = 1 : 2 : 1$

Prove that triangle *ACE* is congruent to triangle *DBE*.

∠CAE = ∠BDE (base isocoles angles are equal) (1)

AE = DE (given) (1)

AB : BC : CD
1 : 2 : 1 ⇒ AB + BC = BC + CD
AC = BD

SO △ACE = △DBE by SAS (1)

(Total for Question 3 is 3 marks)