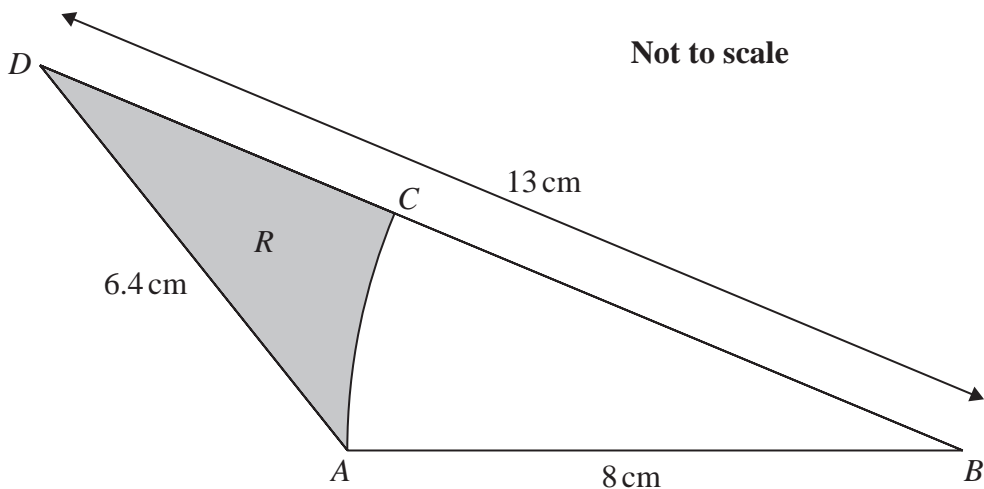**4.**

Figure 1

The shape *ABCD*, shown in Figure 1, consists of a triangle *ABD* containing a sector *ABC* of a circle with centre *B*.

Given that

- $AD = 6.4\,$cm

- $BD = 13\,$cm

- $BA = BC = 8\,$cm

(a) show that angle $ABC = 0.394$ radians to 3 significant figures.

(2)

The region *R*, shown shaded in Figure 1, is bounded by the line *CD*, the line *DA* and the arc *AC*.

(b) Find the area of *R*, giving the answer in cm^2 to 3 significant figures.
You must make your method clear.

(3)