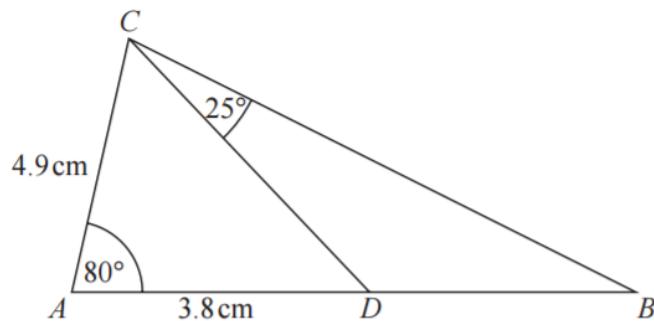**21**

ABC is a triangle.
D is a point on AB.

Work out the area of triangle BCD.
Give your answer correct to 3 significant figures.

$$CD^2 = 4.9^2 + 3.8^2 - 2 \times 4.9 \times 3.8 \cos 80°$$

$$CD^2 = 31.98..$$

$$CD = \sqrt{31.98..} = 5.655..$$

$$\frac{\sin ACD}{3.8} = \frac{\sin 80°}{5.655..}$$

$$\sin ACD = \frac{3.8 \sin 80°}{5.655..} = 0.6617..$$

$$ACD = 41.43°$$

$$CDB = 80° + 41.43° = 121.43°$$

$$DBC = 180° - 121.43° - 25° = 33.57°$$

$$\frac{DB}{\sin 25°} = \frac{5.655}{\sin 33.57}$$

$$DB = \frac{5.655 \sin 25°}{\sin 33.57°} = 4.322$$

$$Area = \frac{1}{2} \times 5.655 \times 4.322 \times \sin 121.43° = 10.4 \; cm^2$$