Section 2: Circular measure

Exercise level 1

1. Find the length of the arc for each of the sectors of circles described below.
   (i) Radius 10 cm, angle 2 radians

   (ii) Radius 8 cm, angle $\dfrac{7\pi}{12}$ radians.

   (iii) Radius 15 cm, angle 105°.

2. Find the areas of the each of the sectors question 1.

3. An arc AB subtends an angle of 1.5 radians at the centre O of a circle of diameter 20 cm. Find the length of arc AB and the area of sector AOB.

4. If the angle θ is small, find an approximate expression for each of the following.
   (i) $\sin 2\theta$
   (ii) $\tan 3\theta$
   (iii) $\sin \theta \cos \theta$
   (iv) $\tan \theta \cos 2\theta$
   (v) $1 - \cos 2\theta$

5. A chord AB subtends an angle of 0.75 radians at the centre of a circle of radius 20 cm. Find the area of the minor segment cut off by AB.