



Name: _____ () Class: _____ Date: _____

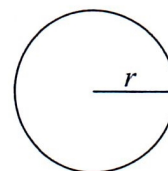
MA304.1.2 – Area of a Sector

At the end of this unit, you should be able to

- find area of a sector of a circle

With the knowledge of the radian in measuring angles, it can be used to derive the area of sectors.

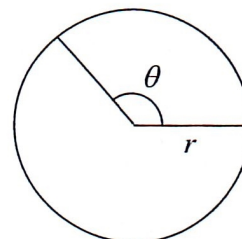
E1. Given a complete circle with radius r , state its area in terms of r .



(a) What fraction of the area would be occupied by a sector of angle 30° ?

(b) What fraction of the area would be occupied by a sector of angle $\frac{7\pi}{6}$?

(c) Let the angle subtended by the arc be θ radians. Determine the area, A occupied by the sector in terms of r and θ .



- (d) Now let the arc subtended by the angle be of length s . Determine the area, A occupied by the sector in terms of r and s .

Given r , the radius of the sector/circle and θ , the angle subtended by the arc, the area of the sector is given by $\frac{1}{2}r^2\theta$ or $\frac{1}{2}rs$.

E2. The chord of a circle of radius 8 cm is 12 cm long.

- (a) Find the angle subtended by the chord at the centre of the circle.

- (b) Find the area of the minor segment of the circle.

P1. A prism container A , whose base is shaped of that of a sector of a circle with radius 12 cm with an arc length of 8 cm, has a depth of 5 cm. Fluid X is then poured into the container, filling to the brim. This fluid is then poured into another container B which has the same shape as A , but has a depth of 4 cm, an angle of 45° subtended by the arc, and a radius of 10 cm. Determine the depth of which the fluid will take up in container B .