

- 1 Express  $240^\circ$  in radians. (Show at least one intermediate step.)

$$240^\circ = 240 \cdot \frac{\pi}{180} = \frac{240}{180}\pi = \frac{4}{3}\pi = \frac{4\pi}{3}.$$

- 2 Express  $-5\pi/4$  in degrees. (Show at least one intermediate step.)

$$-\frac{5\pi}{4} = -\frac{5\pi}{4} \cdot \frac{180^\circ}{\pi} = -\frac{5 \cdot 180^\circ}{4} = -225^\circ.$$

- 3 **Extra credit:** Express 2 in degrees; either give an exact answer or round off to two decimal places. (Show at least one intermediate step.)

$$2 = 2 \cdot \frac{180^\circ}{\pi} = \frac{2 \cdot 180^\circ}{\pi} = \frac{360^\circ}{\pi}.$$

(There is no need to round this off.)

- 4 The radius of a circle is 10 metres. An angle from the centre of this circle is  $1/2$  radians. What is the area of the sector of this circle within this angle? (Show what numerical calculation you make, and be sure to include the correct units in your final answer.)

Either directly use  $A = \frac{1}{2}r^2\theta$ :

$$\frac{1}{2}(10\text{ m})^2\left(\frac{1}{2}\right) = 25\text{ m}^2.$$

Or else, first use  $s = r\theta$  and then  $A = rs$ : first

$$(10\text{ m})\left(\frac{1}{2}\right) = 5\text{ m};$$

then

$$\frac{1}{2}(10\text{ m})(5\text{ m}) = 25\text{ m}^2.$$