TRIGONOMETRY P1.

- CIRCULAR MEASURE (7-8 Marks)
- PURE TRIGONOMETRY (7-8 Marks).

BASICS :-

ANGLES

- DEGREES
- RADIANS

$180 = \pi$

(i) Convert 120° to radians.

$180^\circ = \pi$ rad

$120^\circ = x$

$180x = \pi \times 120$

$x = \frac{120 \times \pi}{180}$

$x = \frac{2\pi}{3}$

(ii) Convert 3.8 rad to degrees.

$180^\circ = \pi$ rad.

$x = 3.8$ rad.

$\pi x = 3.8 \times 180$

$x = \frac{3.8 \times 180}{\pi}$

$x = 217.723^\circ$

FAMOUS ANGLES

$180^\circ = \pi$ rad

$90^\circ = \frac{\pi}{2}$ rad

$45^\circ = \frac{\pi}{4}$ rad.

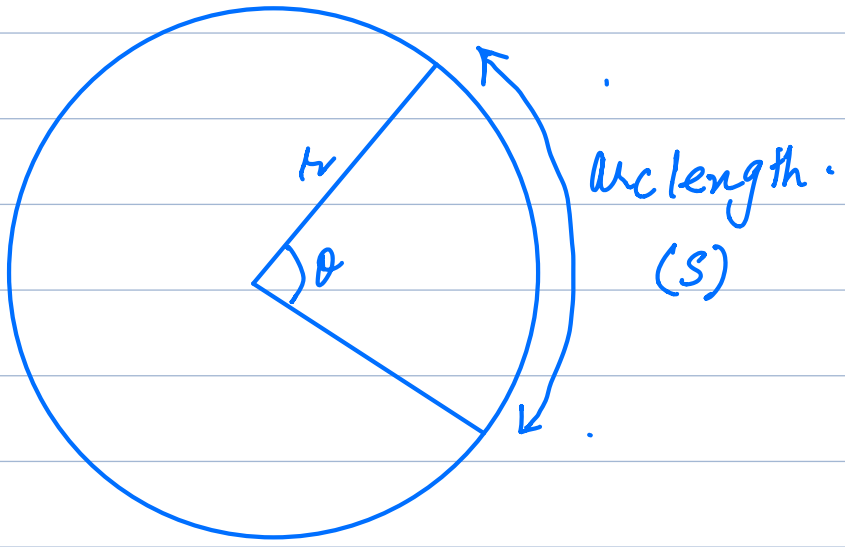
$30^\circ = \frac{\pi}{6}$ rad

$60^\circ = \frac{\pi}{3}$ rad.

$360^\circ = 2\pi$ rad.

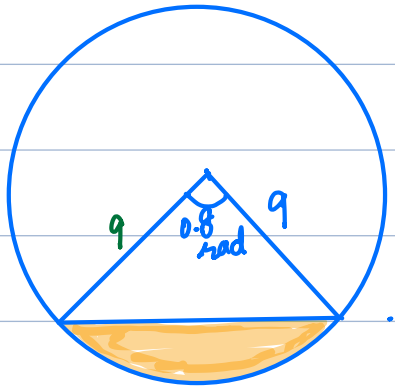
DEGREES	0	30	45	60	90
RADIANS	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$
Sin	0	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	1
COS	1	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	0
tan	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	∞

SECTORS



θ = Degrees.	θ = RADIANS.
Arc length $= \frac{\theta^\circ}{360} \times 2\pi r$	Arc length $= s = r\theta$
Area of Sector $= \frac{\theta^\circ}{360} \times \pi r^2$	Area of Sector $= \frac{1}{2} r s$ ($s = r\theta$) $A = \frac{1}{2} r^2 \theta$

Q



Find area of Shaded region

Shaded Area = SECTOR − TRIANGLE

$= \frac{1}{2} r^2\theta - \frac{1}{2} \square\square \sin(\bigcirc)$

$= \frac{1}{2}(9)^2(0.8) - \frac{1}{2}[9][9] \sin(0.8)$

CALCULATOR MODE

$= 32.4 - 29.05$

SHADED AREA $= 3.347$

WHEN TO SWITCH CALCULATOR TO RADIAN MODE.

ONLY IF YOUR WORKING CONTAINS

$\sin \square$ $\quad$ or $\quad$ $\sin^{-1} \square$

$\cos \square$ $\quad$ or $\quad$ $\cos^{-1} \square$

$\tan \square$ $\quad$ or $\quad$ $\tan^{-1} \square$