2. Angle properties of circles

1.	<QRO = 30^0 Base angles of isosc. Triangle <ROT = 100-120 = 60^0 <s on straight line <ROT = 60^0 <ORP = 60^0 Base angles of Isoc triangle <QRS = 90^0 diameter subtended right angle at the circumference (a) <SRQ = 90^0 – 30 - 30^0 = 30^0 <QRO + ORP + SRP = 90^0 Diam. Subt 90^0 at circumference (b) ORP = 60^0 Base angle of isosceles triangle (c) OP to MPT <OPT = 90^0 Radius meets tangent at 90^0 <RTP = 90^0 - <OPR = 90^0 - 30^0 = 60^0 (d) <STP = 180^0 - <OPT 90^0 - <POT 60^0 Angle sum of triangle = 30^0 (e) <QPM = <QRP = 60^0 Angles in alternate segment	**B1** **B1** **B1 B1** **B1** **B1** **B1** **B1** **B1** **B1**	
		10	
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		10	

1. *Area of $\Delta AXY = ½ \times 4^2 \times \sin 97.2^0$*

$= 7.94\ cm^2$

Area of sector AXY = $\frac{97.2}{} \times \pi \times 4^2$

360

$= 13.57\ cm^2$

Area of shaded part $= 13.57 - 7.94 = 5.63\ cm^2$

Area of Δ BXY $= \frac{1}{2} \times 6^2 \sin 30$

$= 9\ cm^2$

Area of sector BXY $= \frac{30}{360} \times \pi \times 6^2$

$= 9.42\ cm^2$

Area of shaded part

$= (9.42 - 9)\ cm^2 = 0.42\ cm^2$

Area of shaded region $= (5.63 + 42)\ cm^2 = 6.05\ cm^2$

2. (i) $\angle AOB = 2 \angle ACB$

$= 100^o$

$\angle OAB = \frac{180 - 100}{2}$ Base angles of Isosceles Δ

$= 40^0$

(ii) $\angle ADC = 180^0 - 70^0$

$= 110^0$

3. $^2/_5 \div \frac{1}{2}$ 0f $^4/_9 - 1^1/_{10}$

$= {}^2/_5 \div \frac{1}{2} X\ {}^4/_9 - {}^{11}/_{10}$

$= {}^2/_5 \times {}^9/_2 - {}^{11}/_{10}$

$= {}^9/_5 - {}^{11}/_{10} = {}^{18-11}/_{10} = {}^7/_{10}$

$^1/_8 - {}^1/_6\ X\ {}^3/_8 = {}^1/_8 - {}^1/_{16}$

$= {}^{2-1}/_{16} = {}^1/_{16}$

$$\frac{{}^2/_5 \div \frac{1}{2}\ 0f\ {}^4/_9 - 1^1/_{10}}{{}^1/_8 - {}^1/_6\ of\ {}^3/_8} = \frac{{}^7/_{10}}{{}^1/_{16}}$$

$= {}^7/_{10}\ X\ {}^{16}/_1$

$= {}^{56}/_5 = 11^1/_5$

4. a) DAC =DCA = ½ (180 – 100) (base sios $= 40^o$

(b) BAC = DCA alt ,$\angle$s AB//AD)

$= 40^o$

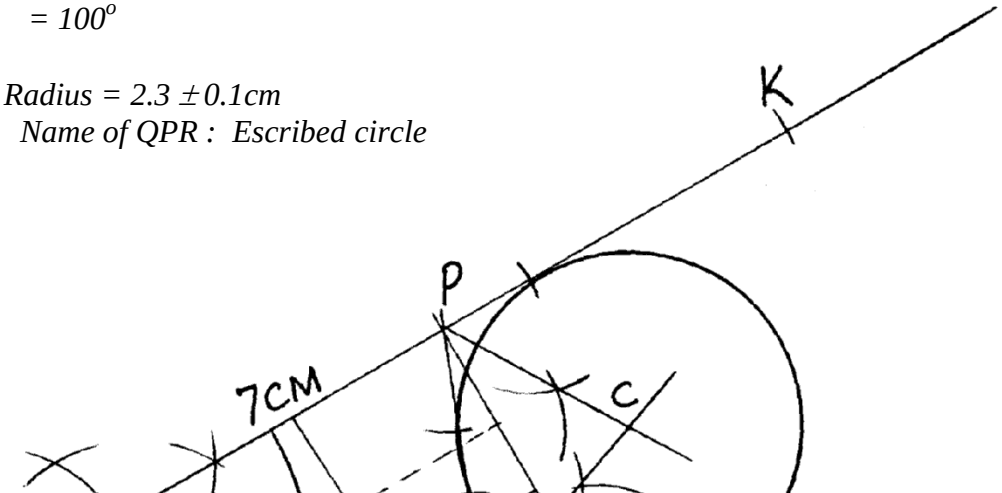
(b) DAB = DAC + BAC = $40 + 40 = 80^o$

BCD = $180^o - 80^o$

$= 100^o$

5. c) (ii) Radius = 2.3 ± 0.1cm

Name of QPR : Escribed circle



6. *(i) ∠ACB = 10^o (∠s subtended by chord AB)*
(ii) ∠AOD = 160^o (∠ at centre line at circumference)
(iii) ∠CAB = 40^o (∠s subtended by chord AB)
(iv) ∠ABC = 130^o (Opposite ∠s of cyclic quadrilateral)
(v) ∠AXB = 60^o(sum angle of triangle

7. *i) $\frac{80}{360} \times \frac{22}{7} \times 9 \times 9$*
= 63.6429 cm^2

ii) ½ ab Sin C
= ½ x 9 x 9 Sin 80^0
= 39.8847 cm^2

iii) $\frac{180}{360} \times \frac{22}{7} \times 9 \times 9$
= 127.2857 cm^2

Segment: 63.6429 – 39.8847
= 23.7582 x 2 = 47.5164 cm^2
∴ 127.2857 – 47.5164
= 79.7693cm^2 = 79.77 cm^2

8. *(a) ∠RST = 180^o – 46^o Opposite angel in cyclic quadrilateral*
= 134^o
(b) ∠SUT = 180^o – 46^o – 27^o (Sum of angles in a traingle QRU)
= 180^o – 173^o = 7^o

(c) ∠ROT = 2 x 46^o (angle substended by chord RT at the centre
= 92^o
(d) ∠PST = 180^o – 37^o – 48^o – 53^o
Sum of angles in a triangle PST

(e) Reflex ∠SOP = (2x 37^o) + 2x 42^o) = 158^o
Angle subtended chord at centres is twice angle at circle

9. *∠POQ = 80^o*
Radius = $\frac{1.7}{\sin 40}$ = 2.645cm
Area of the triangle = ½ x 2.645^2 sin 80 = 3.445cm^2
Area of the sector = ($\frac{80}{360} \times \pi \times 2.645^2$)
= 4.884cm^2
Area of the shaded segment = (4.884 – 3.445) = 1.439cm^2

10. a) $\measuredangle BDC = 90^o - 33^o$, 3^{rd} angle of

$= 57^o$ ΔBCD, $\measuredangle BCD = 90$.

$\measuredangle ADC = \measuredangle ADB + \measuredangle BDC$

$= 48^o + 57^o = 105^o$

b) Consider Δ BCE

$\measuredangle$ AEB is an exterior opposite angle

$\therefore \measuredangle$ AEB $= 33^o + 48^o = 81^o$ $\surd$