

7ULDQJOHV

)UHH 5HVSQRQVH 4XHVWLRQV

Q: 1 *LYH DQ H[DPSOH HDFK IRU ZKHQ WZR UHFWDQJOHV DUH, [1]
L VLPLODU
LL QRW VLPLODU

Q: 2 \$ SDLQWHG FXERLG 6ROLG 3 LV FXW DORQJ D SODQH WR JHW WZR LGHQWLFDO VROLG 4 LV VKRZQ EHZ 6ROLG 4 LV VKRZQ EHZ

(Note: The figures are not to scale.)

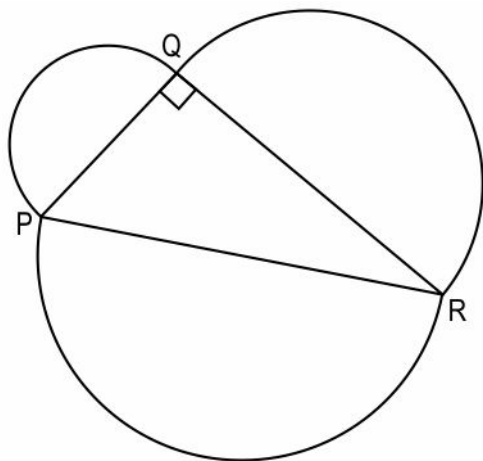
:KDW LV WKH DUHD RI WKH IDFH RI 6ROLG 4 WKDW LV QRW SDLQWHG" 6KRZQ EHZ

Q: 3 6KRZQ EHZ LV DQ LVRVFOHV ULJKW DQJOHG)345 7KH DUHD RI)345 L

(Note: The figure is not to scale.)

)LQG WKH OHQJWK RI 35 6KRZ \RXU ZRUN

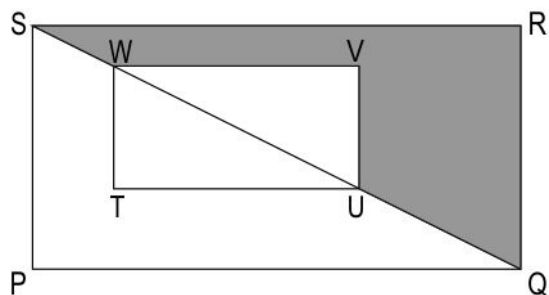
Q: 4 6KRZQ EHORZ LV D ILJXUH)345 LV D ULJKW DQJOHG WULDQJOH 7KH UH D
GLDPHWHUV DV VLGHV RI)345 \$OO OHQJWK PHDVXUHPHQWV DUH LQ FP



(Note: The figure is not to scale.)

6KRZ WKDW WKH VXP RI WKH DUHDV RI VHPLFLUFOHV ZLWK GLDPHWHUV 3
WKH DUHD RI VHPLFLUFOH ZLWK GLDPHWHU 35

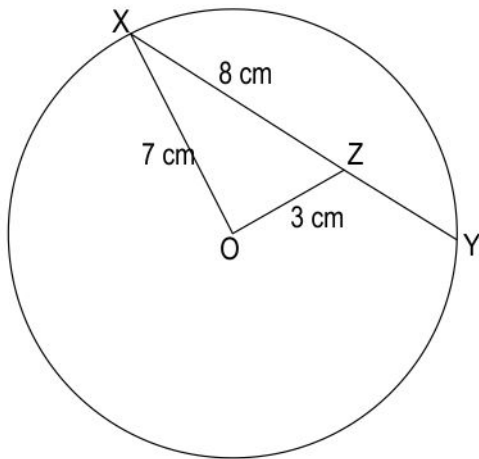
Q: 5 6KRZQ EHORZ LV D ILJXUH ZLWK WZR UHFWDQJOHV 7KH UDWLR RI 89:
RI 789: LV ~ FP



(Note: The figure is not to scale.)

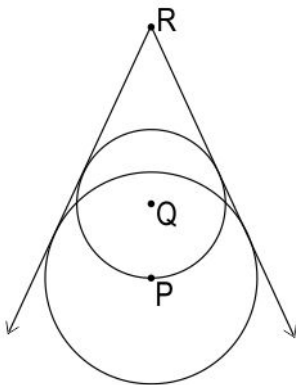
:KDW LV WKH DUHD RI WKH VKDGHG UHJLRQ" 6KRZ \RXU ZRUN

Q: 6 L 7ZR FKRUGV RI D FLUFOH 34 DQG 01 LQWHUVHFW DW D SRLQW 7 6[5]RZ V
 71 'UDZ D ILJXUH
 LL 6KRZQ EHORZ LV D FLUFOH ZLWK FHQWUH 2 8VH WKH UHVXOW IURP S
 RI =< 6KRZ \RXU ZRUN



(Note: The figure is not to scale.)

Q: 7 ,Q WKH ILJXUH EHORZ 3 4 DQG 5 DUH FROOLQHDU 3 DQG 4 DUH FHQWUH V
 OLHV RQ WKH FLUFXPPIHUHQFH RI WKH FLUFOH ZLWK FHQWUH 4 5 LV FP
 3 %RWK FLUFOHV KDYH FRPPRQ WDQJHQWV IURP SRLQW 5



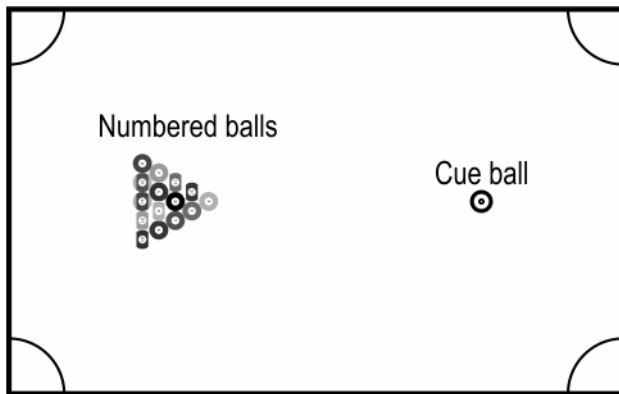
(Note: The figure is not to scale.)

)LQG WKH UDGLXV RI FLUFOH 3 'UDZ D URXJK ILJXUH DQG VKRZ \RXU VWH

Case-Based Questions

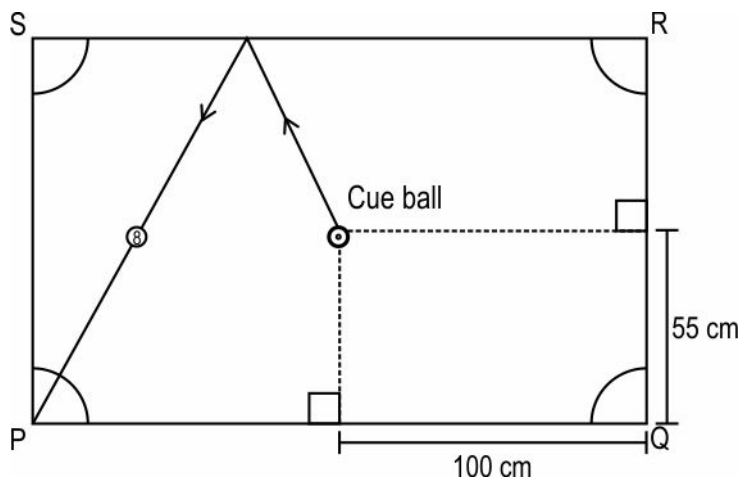
\$QVZHU WKH TXHVWLRQV EDVHG RQ WKH JLYHQ LQIRUPDWLRQ

The rectangular playing top of a pool table is 220 cm long and 110 cm wide. It has 4 pockets in the corners. When a ball hits a side of the table, it bounces off the side at the same angle as it hit that side. There are two kinds of balls - a white cue ball and 15 numbered coloured balls. The cue ball must be used hit a numbered ball into one of the pockets. Shown below is a pool table.



(Note: The figure is not to scale.)

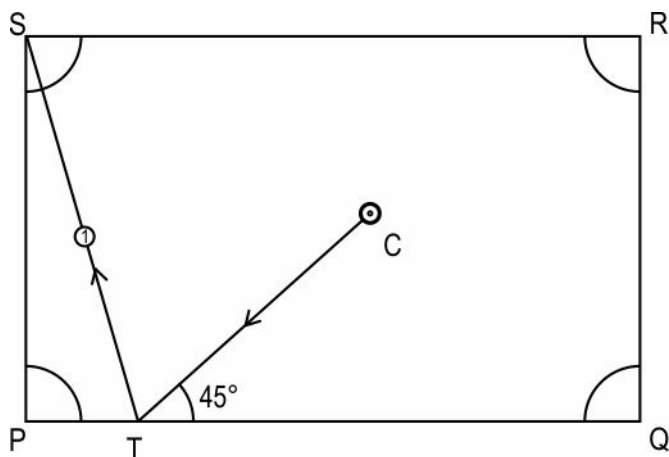
Q: 8 7DQPD\ KDG K LW D QXPEHUHG EDOO LQWR SRFNHW 3 7KH SDWK IROORZ H
EDOO LV VKRZQ EHORZ 7KH FXH EDOO V LQLWLDO GLVWDQFH IURP WKH
PDUNHG LQ WKH ILJXUH



(Note: The figure is not to scale.)

:KDW LV WKH GLVWDQFH RI WKH FXH EDOO IURP SRFNHW 6 ZKHQ WKH EDOO
GLDJUDP DQG VKRZ \RXU ZRUN

Q: 9 6KRZQ EHORZ LV WKH SDWK ZKHQ 7DQPD\ KLWV D EDOO QXPEHU LQ[SRFM
&7 LV ~ FP DQG 76 LV FP 7KH FXH EDOO KLWV WKH VLGH 34 DW DQ DQJ



(Note: The figure is not to scale.)

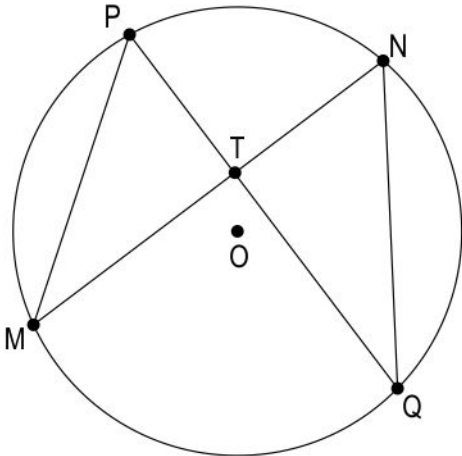
)LQG WKH GLVWDQFH EHWZHHQ WKH FXH EDOO V LQLWLDO SRVLWLRQ DQ
ILJXUH VKRZ \RXU ZRUN DQG JLYH YDOLG UHDVRQV

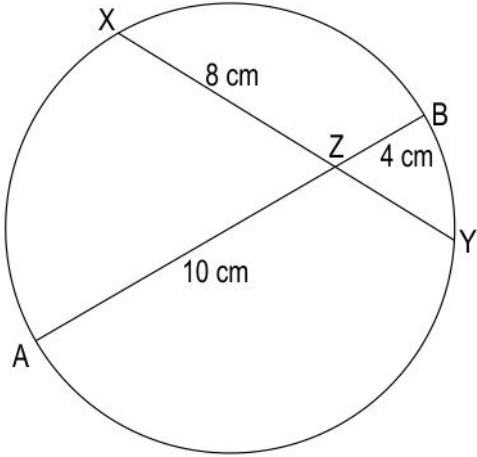
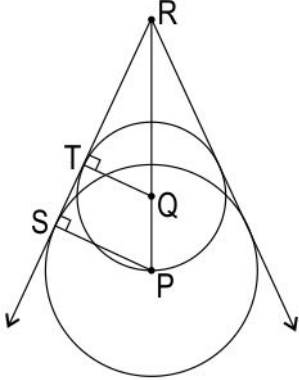
Q.No	What to look for	Marks
	L :ULWHV DQ H[DPSOH IRU ZKHQ WZR UHFWDQJOHV DUH VLPLODU)RU H[DPSOH UHFWDQJOH KDV OHQJWK DQG EUHDGWK RI FP DQG FP UHVSHEFWLYHO\ UHFWDQJOH KDV OHQJWK DQG EUHDGWK RI ~ FP DQG ~ FP UHVSHEFWLYHO\	
	LL :ULWHV DQ H[DPSOH IRU ZKHQ WZR UHFWDQJOHV DUH QRW VLPLODU)RU H[UHFWDQJOH KDV OHQJWK DQG EUHDGWK DV FP DQG FP UHVSHEFWLYHO\ UHFWDQJOH KDV OHQJWK DQG EUHDGWK DV FP DQG ~ FP UHVSHEFWLYHO\	
	)LQGV WKH GLDJRQDO RI WKH IURQW IDFH RI 6ROLG 3 DV ž ~	FP ~
	)LQGV WKH DUHD RI WKH IDFH RI 6ROLG 4 WKDW LV QRW SDLQWHG DV ž~	~
	\$VVXPHV 34 45 DV DQG ZULWHV WKH HTXDWLRQ IRU WKH DUHD RI WKH WÜLDQJOH – ž m . ! m ~	
	8VHV WKH 3\WKDJRUDV WKHRUHP WR ILQG WKH OHQJWK RI 35 DV , ž m m ~ž FP	~
	)LQGV WKH DUHD RI VHPLFLUFOH ZLWK GLDPHWHU 34 DV , $\frac{\pi PQ^2}{8} \text{ cm}^2$	~
	)LQGV WKH DUHD RI VHPLFLUFOH ZLWK GLDPHWHU 45 DV , $\frac{\pi QR^2}{8} \text{ cm}^2$	~
	)LQGV WKH DUHD RI VHPLFLUFOH ZLWK GLDPHWHU 35 DV , $\frac{\pi PR^2}{8} \text{ cm}^2$	~

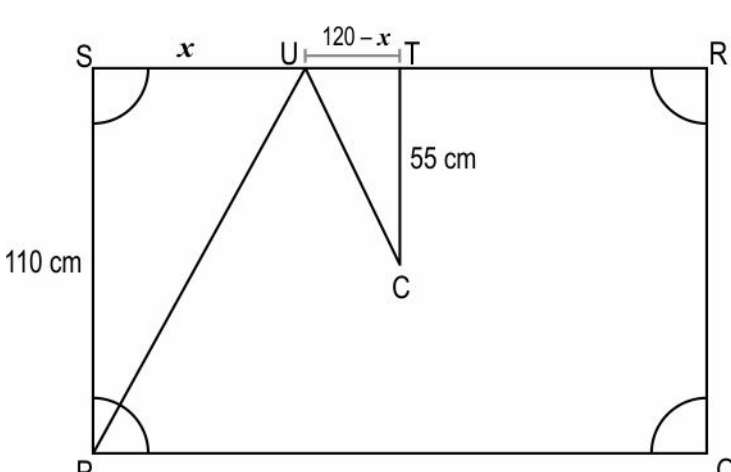


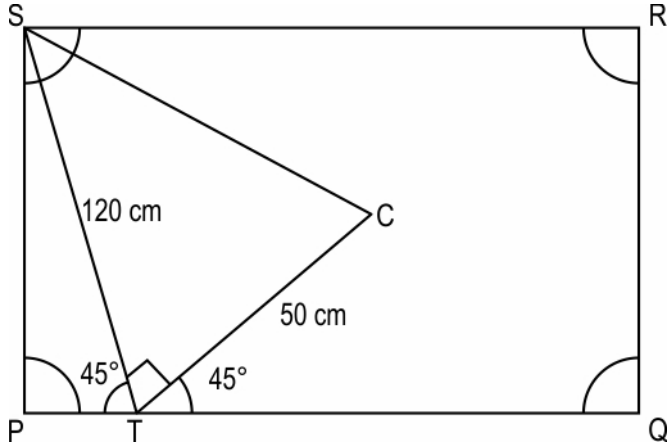
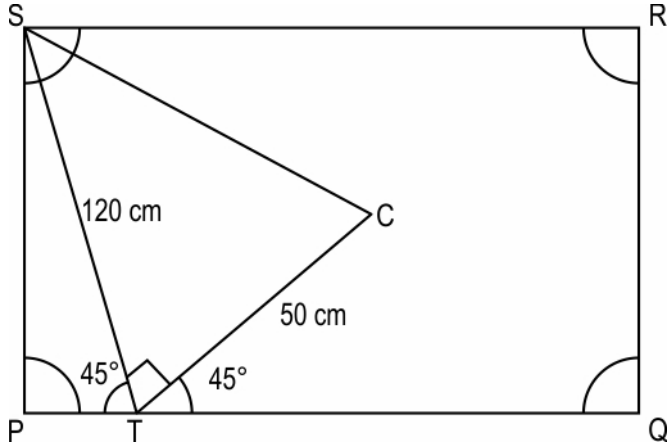
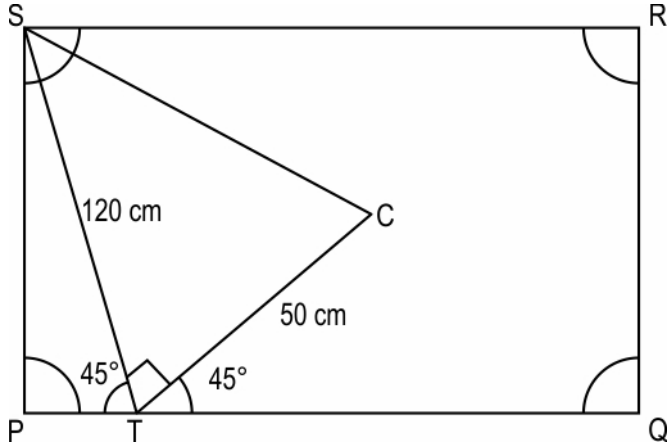
Q.No	What to look for	Marks
	)LQGV WKH VXP RI WKH DUHDV RI VHPLFLUFOHV ZLWK GLDPHWHUV 34 DQG 45 DV $\frac{\pi PQ^2}{8} + \frac{\pi QR^2}{8} = \frac{\pi(PQ^2+QR^2)}{8} \text{ cm}^2$	
	8VHV WKH SIWKDJRUDV WKHRUHP LQ)3454WR ZULWHQ 34VLPSOLILHV WKH DERYH H[SUHVVLRQ DV, $\frac{\pi PR^2}{8} \text{ cm}^2$ +HQFH FRQFOXGHV WKDW WKH VXP RI WKH DUHDV RI VHPLFLUFOHV ZLWK GLDPHWHUV 34 LV HTXDO WR WKH DUHD RI VHPLFLUFOH ZLWK GLDPHWHU 35	
~	:ULWHV WKDW LQ)89: DQG)456 $\frac{89}{45} - \frac{9}{56} = \text{JLYHQ}$ □89: □456 ~ r	~
	&RQFOXGHV WKDW)89: Å)456 E\ 6\$6 FULWHULRQ RI VLPLODULW\	~
	)LQGV DUHD RI)89: DV ~ FP	~
	)LQGV WKH DUHD RI)456DV ~ FP	
	)LQGV WKH DUHD RI WKH VKDGHG UHJLRQ DV ~ FP	~



Q.No	What to look for	Marks
✓	L 'UDZV D FLUFOH ZLWK FKRUGV 34 DQG 01 -RLQV 30 DQG 41 WR IRUP)307 DQG 7KH ILJXUH PD\ ORRN DV IROORZV. 	
	:ULWHV WKDW LQ)307 DQG)147 □ 307 □ 147 DQJOHV LQ WKH VDPH VHJPHQW VXEWHQG HG E\ WKH VDPH DUF □ 730 □ 714 DQJOHV LQ WKH VDPH VHJPHQW VXEWHQG HG E\ WKH VDPH DUF +HQFH)307 Å)147 E\ \$\$ VLPLODULW\ FULWHULRQ	✓
	8VHV WKH DERYH WR ZULWH WKH UDWLR RI VLGHV DV. $\frac{07}{74} \quad \frac{37}{71}$! 37 Ž 74 07 Ž 71	

Q.No	What to look for	Marks
	LL 'UDZV D URXJK ILJXUH ZLWK GLDPHWHU \$% 7KH ILJXUH PD\ ORRN DV IROORZ. 	
	)LQGV OHQJWK R+< DVFP	~
^	'UDZV D URXJK ILJXUH ZLWK WKH UDGLL RI WKH WZR FLUFOHV 7KH ILJXUH PD\ C 	
	:ULWHV WKDW LQ)365 DQG)475 ▣356 ▣457 FRPPRQ ▣365 ▣475 ~ r UDGLXV LV SHUSHQGLFXODU WR WKH WDQJHQW DW WKH SRLQW	~

Q.No	What to look for	Marks
	8VHV WKH DERYH VWHS WR FRQFOXGH WKDW E\ \$\$ FULWHULRQ RI VLPLODULW\	
	)LQGV WKH UDGLXV RI FLUFOH 4 DV 35 34 ~ ~ FP	~
	8VHV VWHS WR ZULWH WKH UDWLR RI VLGHV DV, $\frac{36}{47} \quad \frac{35}{45}$! $\frac{36}{47} \quad \frac{35}{45}$	
	8VHV WKH DERYH VWHS WR ILQG WKH UDGLXV RI FLUFOH 3 DV	~
	\$VVXPHV 68 DFP DQG GUDZV D URXJK GLDJUDP 7KH ILJXUH PD\ ORRN DV IRORZ	
	 1RWH 7KH ILJXUH LV QRW WR VFDOH	
	:ULWHV WKDW LQ)368 DQG)&78 □368 □&78 ~ r □683 □&87 \$QJOH DW ZKLFK EDOO KLWV DQJOH DW ZKLFK LW ERXQFHV RII	
	8VHV WKH DERYH VWHS WR FRQFOXGH WKDW E\ \$\$ FULWHULRQ RI VLPLODULW\ À)&78	

Q.No	What to look for	Marks
	1. The figure shows a rectangle PQRS. A line segment ST is drawn from vertex S to point T on side PQ. A line segment TC is drawn from point T to point C on side RS. The length of ST is 120 cm and the length of TC is 50 cm. The angle STP is 45° and the angle CTQ is 45°. Find the length of the diagonal PR.  (Note: The figure is not to scale.)	6
	2. The figure shows a rectangle PQRS. A line segment ST is drawn from vertex S to point T on side PQ. A line segment TC is drawn from point T to point C on side RS. The length of ST is 120 cm and the length of TC is 50 cm. The angle STP is 45° and the angle CTQ is 45°. Find the length of the diagonal PR.  (Note: The figure is not to scale.)	6
	3. The figure shows a rectangle PQRS. A line segment ST is drawn from vertex S to point T on side PQ. A line segment TC is drawn from point T to point C on side RS. The length of ST is 120 cm and the length of TC is 50 cm. The angle STP is 45° and the angle CTQ is 45°. Find the length of the diagonal PR.  (Note: The figure is not to scale.)	6