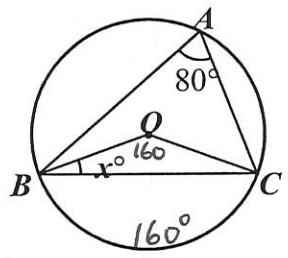
國九上 數學 週末作業 2-2 弦切角、圓內角、圓外角 (2)　　108/11/15

班級:　　座號:　　姓名

求出下列第 1~9 題中 x 的度數。

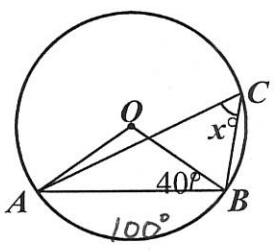
1.



$\angle BOC = \overset{\frown}{BC} = 2\times 80° = 160°$

$x = \frac{180-160}{2} = 10$ ※

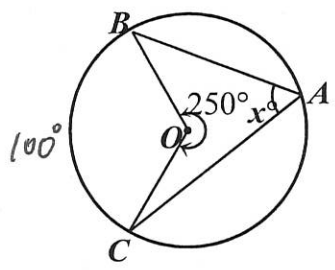
2.



$\overset{\frown}{AB} = \angle AOB$
$= 180° - 40°\times 2$
$= 100°$

$\Rightarrow x = \frac{1}{2}\times 100 = 50$ ※

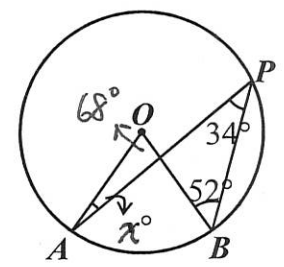
3.



$\overset{\frown}{BC} = \angle BOC$
$= 360° - 250°$
$= 110°$

$\Rightarrow x = \frac{1}{2}\times 110 = 55$ ※

4.

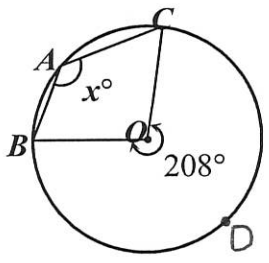


$\angle AOB = \overset{\frown}{AB}$
$= 2\times 34°$
$= 68°$

$x + 68 = 52 + 34$

$x = 18$ ※

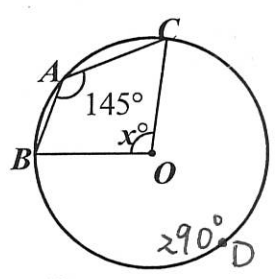
5.



$\overset{\frown}{BDC} = 208°$

$\Rightarrow x = \frac{1}{2}\times 208 = 104$ ※

6.

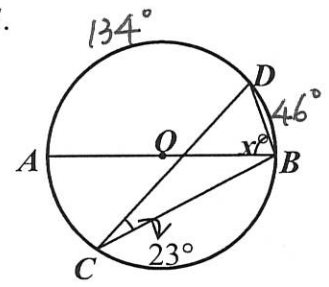


$\overset{\frown}{BDC} = 2\times 145°$
$= 290°$

$\Rightarrow \overset{\frown}{BAC} = 360° - 290° = 70°$

$\Rightarrow x = 70$ ※

7.

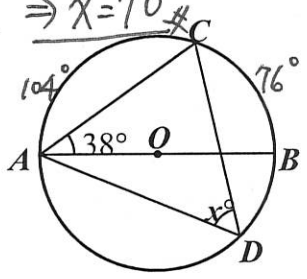


$\overset{\frown}{BD} = 2\times 23° = 46°$

$\Rightarrow \overset{\frown}{AD} = 180° - 46° = 134°$

$\Rightarrow x = \frac{1}{2}\times 134 = 67$ ※

8.

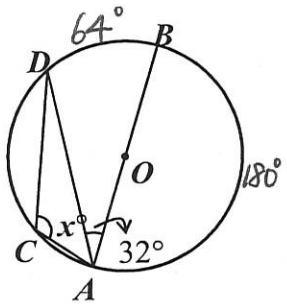


$\overset{\frown}{BC} = 2\times 38° = 76°$

$\Rightarrow \overset{\frown}{AC} = 180° - 76° = 104°$

$\Rightarrow x = \frac{1}{2}\times 104 = 52$ ※

9.

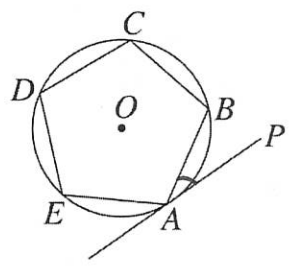


$\overset{\frown}{BD} = 2\times 32° = 64°$

$\Rightarrow \overset{\frown}{ABD} = 180° + 64°$
$= 244°$

$\Rightarrow x = \frac{1}{2}\times 244 = 122$ ※

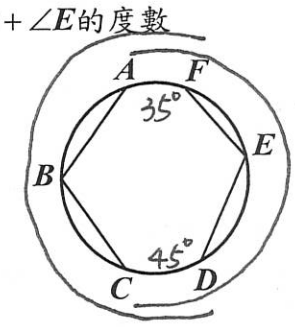
10.如圖，$ABCDEF$ 為正五邊形，且 $\overline{PA}$ 切圓 O 於 A 點，則 $\angle PAB = ?$



$\overset{\frown}{AB} = \frac{360°}{5} = 72°$

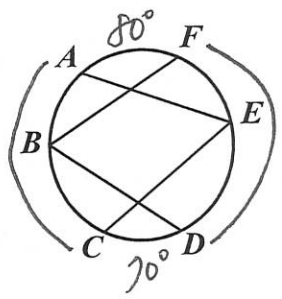
$\Rightarrow \angle PAB = \frac{1}{2}\overset{\frown}{AB}$
$= \frac{1}{2}\times 72° = 36°$ ※

11. 如圖，$\overset{\frown}{AF} = 35°$，$\overset{\frown}{CD} = 45°$，求 $\angle B + \angle E$ 的度數



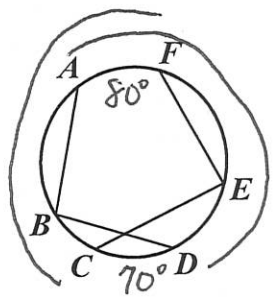
$\angle B + \angle E$
$= \frac{1}{2}\overset{\frown}{AEC} + \frac{1}{2}\overset{\frown}{DBF}$
$= \frac{1}{2}(\overset{\frown}{AEC} + \overset{\frown}{DBF})$
$= \frac{1}{2}(360° + 35° + 45°)$
$= \frac{1}{2}\times 440° = 220°$ ※

12. 如圖，$\overset{\frown}{AF} = 80°$，$\overset{\frown}{CD} = 70°$，求 $\angle B + \angle E$ 的度數



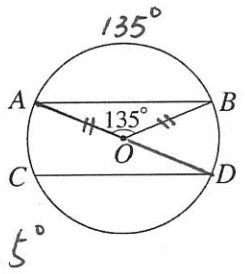
$\angle B + \angle E$
$= \frac{1}{2}\overset{\frown}{DEF} + \frac{1}{2}\overset{\frown}{ABC}$
$= \frac{1}{2}(\overset{\frown}{DEF} + \overset{\frown}{ABC})$
$= \frac{1}{2}(360° - 80° - 70°)$
$= \frac{1}{2}\times 210° = 105°$ ※

13.如圖，$\overset{\frown}{AF} = 80°$，$\overset{\frown}{CD} = 70°$，求 $\angle B + \angle E$ 的度數



$\angle B + \angle E$
$= \frac{1}{2}\overset{\frown}{AED} + \frac{1}{2}\overset{\frown}{FAC}$
$= \frac{1}{2}(\overset{\frown}{AED} + \overset{\frown}{FAC})$
$= \frac{1}{2}(360° - 70° + 80°)$
$= \frac{1}{2}\times 370° = 185°$ ※

14. 如圖，A、B、C、D 均在圓 O 上，且 $\overline{AB} // \overline{CD}$，$A$、$O$、$D$ 在同一直線上，若 $\angle AOB = 135°$，則 $\overset{\frown}{AC}$ 多少度?



$\angle BAD = \frac{180° - 135°}{2}$
$= 22.5°$

$\because \overline{AB} // \overline{CD}$

$\therefore \angle ADC = \angle BAD = 22.5°$

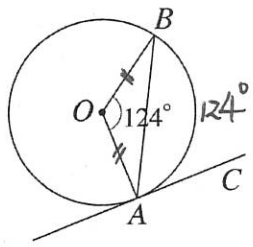
$\Rightarrow \overset{\frown}{AC} = 2\times 22.5° = 45°$ ※

另解

$\because \overline{AB} // \overline{CD}$

$\therefore \overset{\frown}{AC} = \overset{\frown}{BD}$
$= 2\times 22.5°$
$= 45°$ ※

15. 如圖，$\angle BAC$ 為圓的弦切角，O 為圓心，且 $\angle BOA = 124°$，則 $\angle BAC = ?$



$\overset{\frown}{BA} = \angle BOA = 124°$

$\Rightarrow \angle BAC = \frac{1}{2}\overset{\frown}{BA}$
$= \frac{1}{2}\times 124°$
$= 62°$ ※

16. 如圖，圓 O 為 $\triangle ABC$ 的外接圓，$\overline{AD}$ 為切線，

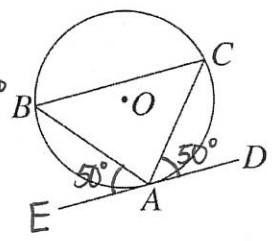
若 $\angle CAD=50°$，且 $\overline{AD}\parallel\overline{BC}$，

則 $\angle CAB=?$

$\because \overline{AD}\parallel\overline{BC}$

$\therefore \overset{\frown}{BA}=\overset{\frown}{CA}$

$\Rightarrow \angle CAB=180°-50°-50°=80°$ ※



$\Rightarrow \angle BAE=\angle CAD=50°$

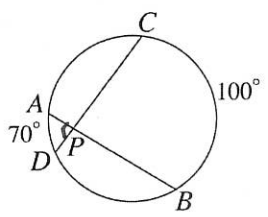
17. 如圖，若 $\overset{\frown}{AD}=70°$，$\overset{\frown}{BC}=100°$

則 $\angle APC=?$

$\angle APD=\frac{1}{2}(70°+100°)$

$=85°$

$\Rightarrow \angle APC=180°-85°=95°$ ※



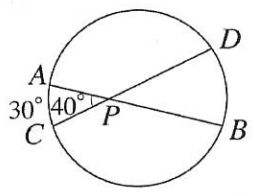
18. 如圖，若 $\overset{\frown}{AC}=30°$，$\angle APC=40°$

則 $\overset{\frown}{BD}$ 多少度?

$\frac{1}{2}(30°+\overset{\frown}{BD})=40°$

$30°+\overset{\frown}{BD}=80°$

$\Rightarrow \overset{\frown}{BD}=50°$ ※



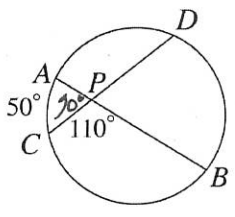
19. 如圖，若 $\overset{\frown}{AC}=50°$，$\angle CPB=110°$

則 $\overset{\frown}{BD}$ 多少度?

$\angle APC=180°-110°=70°$

$\frac{1}{2}(50°+\overset{\frown}{BD})=70°$

$50°+\overset{\frown}{BD}=140°\Rightarrow \overset{\frown}{BD}=90°$ ※

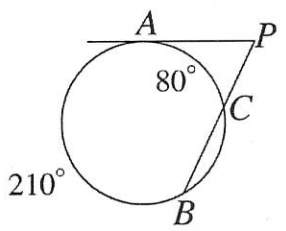


20. 如圖，P 為圓外一點，直線 PA 為圓的切線，直線 PB 為圓的割線，若 $\overset{\frown}{AB}=210°$，$\overset{\frown}{AC}=80°$，則 $\angle P=?$

$\angle P=\frac{1}{2}(\overset{\frown}{AB}-\overset{\frown}{AC})$

$=\frac{1}{2}(210°-80°)$

$=\frac{1}{2}\times 130°=65°$ ※

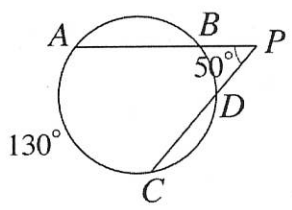


21. 如圖，P 為圓外一點，直線 PA 與直線 PC 為此圓的割線，若 $\overset{\frown}{AC}=130°$，$\angle P=50°$，則 $\overset{\frown}{BD}$ 多少度?

$\frac{1}{2}(130°-\overset{\frown}{BD})=50°$

$130°-\overset{\frown}{BD}=100°$

$\overset{\frown}{BD}=30°$ ※



22. 如圖，已知 $\overline{PC}$ 切圓 O 於 C，若 $\overset{\frown}{BDC}=220°$，$\angle ABC=30°$，

則：(1) $\angle ACP=?$ (2) $\angle BPC=?$

(1) $\overset{\frown}{AC}=2\angle ABC$

$=2\times 30°$

$=60°$

$\Rightarrow \angle ACP=\frac{1}{2}\overset{\frown}{AC}$

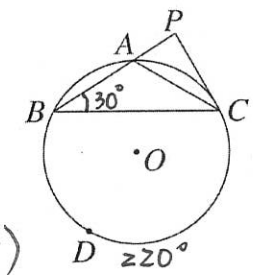
$=\frac{1}{2}\times 60°=30°$ ※

(2) $\angle BPC$

$=\frac{1}{2}(\overset{\frown}{BDC}-\overset{\frown}{AC})$

$=\frac{1}{2}(220°-60°)$

$=\frac{1}{2}\times 160°=80°$ ※



23. 如圖，$\overset{\frown}{AD}:\overset{\frown}{DE}:\overset{\frown}{EB}=2:3:1$，$4\overset{\frown}{AC}=5\overset{\frown}{CB}$，且 $\overline{AB}$ 為直徑，求 $\angle x$、$\angle y$

$\because \overline{AB}$ 為直徑

$\therefore \overset{\frown}{AD}=180°\times\frac{2}{6}=60°$

$\overset{\frown}{DE}=180°\times\frac{3}{6}=90°$

$\overset{\frown}{BE}=180°\times\frac{1}{6}=30°$

$\Rightarrow \angle x=\frac{1}{2}\times 90°$

$=45°$ ※

$\because 4\overset{\frown}{AC}=5\overset{\frown}{CB}$

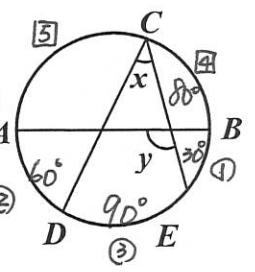
$\therefore \overset{\frown}{AC}:\overset{\frown}{CB}=5:4$

$\Rightarrow \overset{\frown}{BC}=180°\times\frac{4}{9}$ ②

$=80°$

$\Rightarrow \angle y=\frac{1}{2}(80°+150°)$

$=\frac{1}{2}\times 230°=115°$ ※



24. 如圖，若 $\overset{\frown}{AB}:\overset{\frown}{BC}:\overset{\frown}{CD}:\overset{\frown}{DA}=6:2:7:5$

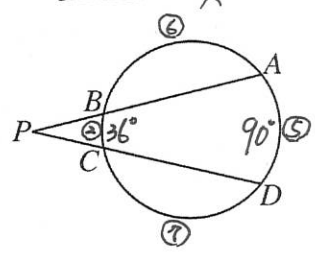
則 $\angle P=?$

$\overset{\frown}{BC}=360°\times\frac{2}{20}=36°$

$\overset{\frown}{AD}=360°\times\frac{5}{20}=90°$

$\Rightarrow \angle P=\frac{1}{2}(90°-36°)$

$=\frac{1}{2}\times 54°=27°$ ※



25. $\angle APB=50°$，$\angle E=30°$，求

(1) $\overset{\frown}{AB}$ 的度數=? (2) $\angle CAD=?$

設 $\overset{\frown}{AB}=x°$，$\overset{\frown}{CD}=y°$

$\frac{1}{2}(x+y)=50$

$\Rightarrow x+y=100$ —①

$\frac{1}{2}(x-y)=30$

$\Rightarrow x-y=60$ —②

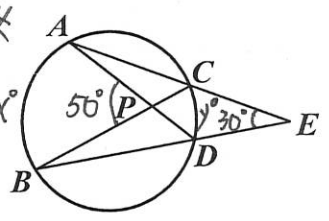
由①② $\Rightarrow x=80$

$y=20$

$\overset{\frown}{AB}=80°$ ※

$\angle CAD=\frac{1}{2}\overset{\frown}{CD}$

$=\frac{1}{2}\times 20°=10°$ ※



26. 如圖，$\overline{AB}$ 為圓 O 的直徑，$\overline{AP}$ 為切線，$\angle PAC=65°$，且 $\overset{\frown}{AD}=3\overset{\frown}{BC}$，求(1) $\overset{\frown}{BC}=?$ (2) $\angle CDA=?$ (3) $\angle DEA=?$

(1) $\overset{\frown}{AC}=2\angle PAC$

$=2\times 65°$

$=130°$

$\Rightarrow \overset{\frown}{BC}=180°-130°$

$=50°$ ※

(2) $\angle CDA=\frac{1}{2}\overset{\frown}{AC}$

$=\frac{1}{2}\times 130°$

$=65°$ ※

(3) $\overset{\frown}{AD}=3\overset{\frown}{BC}$

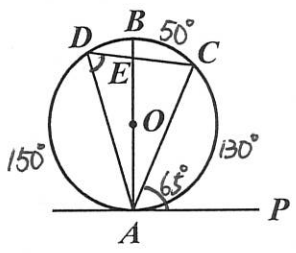
$=3\times 50°$

$=150°$

$\Rightarrow \angle DEA=\frac{1}{2}(\overset{\frown}{BC}+\overset{\frown}{AD})$

$=\frac{1}{2}(50°+150°)$

$=100°$ ※



27. 如圖，直線 AB、直線 DE 交於圓外一點 C，若 $\overline{AD}=\overline{CD}$，$\angle C=22°$，則 $\overset{\frown}{AE}$ 多少度?

$\because \overline{AD}=\overline{CD}$

$\therefore \angle DAC=\angle C=22°$

$\Rightarrow \overset{\frown}{BD}=2\times 22°=44°$

$\frac{1}{2}(\overset{\frown}{AE}-44°)=22°$

$\overset{\frown}{AE}-44°=44°$

$\overset{\frown}{AE}=88°$ ※