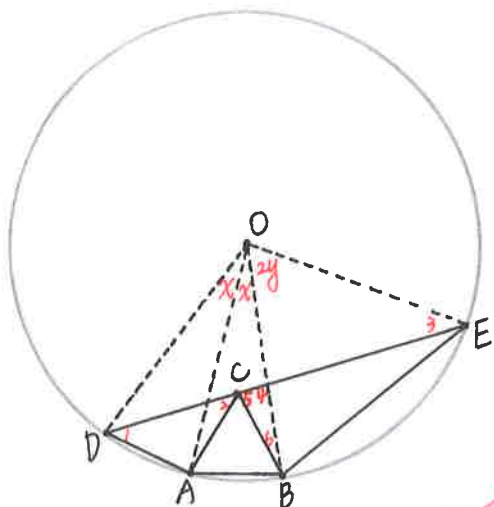


北一女中 103 學年度《數戰數決》有獎徵答活動

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題號： 4-4 頁碼/總頁數： _____ (如果只有一頁，可不填)



1° $\because \overline{AD} = \overline{AB}$
 $\therefore \angle DOA = \angle AOB = x$ (等弦對等弧)

令 $\angle BOE = 2y$, 則 $\angle 1 = \frac{1}{2} \widehat{ABE} = \frac{x+2y}{2}$

又 $\overline{AD} = \overline{AB} = \overline{AC}$, $\triangle ADC$ 為等腰 \triangle

$\Rightarrow \angle 2 = \angle 1 = \frac{x+2y}{2}$

$\angle 5 = 180^\circ - \angle 2 - \angle ACB$

$= 180^\circ - \frac{x+2y}{2} - 60^\circ = 120^\circ - \frac{x+2y}{2}$ ——— ①

$\because \overline{OA} = \overline{OB} = r \Rightarrow \triangle OAB$ 為等腰 \triangle

$\therefore \angle 6 = \frac{180^\circ - x}{2} - 60^\circ = 30^\circ - \frac{x}{2}$ ——— ②

$\because \overline{OD} = \overline{OE} = r \Rightarrow \triangle ODE$ 為等腰 \triangle

$\therefore \angle 3 = \frac{180^\circ - 2x - 2y}{2} = 90^\circ - x - y$

$\Rightarrow \angle 4 = 180^\circ - \angle 3 - \angle BOE = 180^\circ - 90^\circ + x + y - 2y = 90^\circ + x - y$ ——— ③

2° 由 ① ② ③ 代入 $\angle 4 + \angle 5 + \angle 6 = 180^\circ$

$\Rightarrow 90^\circ + x - y + 120^\circ - \frac{x+2y}{2} + 30^\circ - \frac{x}{2} = 180^\circ \Rightarrow y = 30^\circ$

3° 在 $\triangle ECB$ 與 $\triangle OAB$ 中.

$\because \angle DEB = \frac{1}{2} \widehat{BAD} = x = \angle AOB$

$\angle EBC = \frac{180^\circ - 2y}{2} + \angle 6 = 60^\circ + \angle 6 = \angle OBA$

又 $\overline{BC} = \overline{AB}$

$\therefore \triangle ECB \cong \triangle OAB$ (AAS 全等).

故 $\overline{CE} = \overline{OA} = r$ #