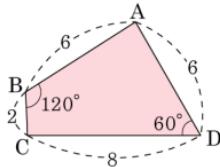


1. 다음 그림의 □ABCD의 넓이는?



- ①  $9 + \sqrt{2}$       ②  $10 + \sqrt{2}$       ③  $12\sqrt{2}$   
④  $14\sqrt{2}$       ⑤  $15\sqrt{3}$

해설

따라서

□ABCD

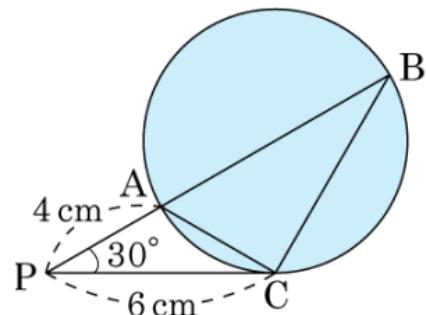
$$= \triangle ABC + \triangle ACD$$

$$= \frac{1}{2} \times 2 \times 6 \times \sin 120^\circ + \frac{1}{2} \times 6 \times 8 \times \sin 60^\circ$$

$$= 6 \times \frac{\sqrt{3}}{2} + 24 \times \frac{\sqrt{3}}{2}$$

$$= 3\sqrt{3} + 12\sqrt{3} = 15\sqrt{3}$$

2. 다음 그림에서  $\overline{PC}$ 는 원의 접선이고,  
 $\overline{PB}$ 는 할선이다.  $\angle P = 30^\circ$ ,  $\overline{PA} = 4\text{cm}$ ,  $\overline{PC} = 6\text{cm}$  일 때,  $\triangle PBC$ 의 넓이是多少?



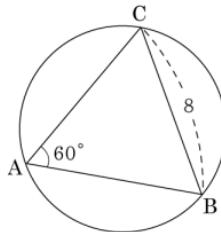
- ①  $\frac{3\sqrt{3}}{2}\text{cm}^2$       ②  $2\sqrt{3}\text{cm}^2$       ③  $\frac{27}{2}\text{cm}^2$   
 ④  $4\sqrt{3}\text{cm}^2$       ⑤  $\frac{\sqrt{3}}{4}\text{cm}^2$

### 해설

$\overline{AB} = x$  라 하면  $\overline{PA} \cdot \overline{PB} = \overline{PC}^2$  에서  $4(4+x) = 36$ ,  $4+x = 9$  이고,  $x = 5\text{cm}$  이다.

$$\therefore \triangle PBC = \frac{1}{2} \times 6 \times 9 \times \sin 30^\circ = \frac{27}{2}(\text{cm}^2)$$

3.  $\triangle ABC$ 에서  $\angle A = 60^\circ$ ,  $\overline{BC} = 8$  일 때  $\triangle ABC$ 의 외접원의 반지름의 길이를 구하여라.



▶ 답 : cm

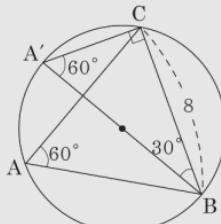
▷ 정답 :  $\frac{8\sqrt{3}}{3}$  cm

해설

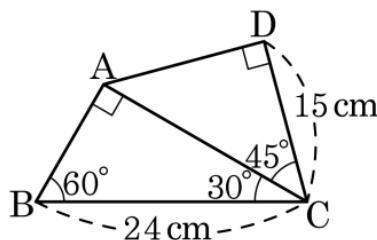
$$\cos 30^\circ = \frac{8}{A'B}, \quad A'B = \frac{8}{\cos 30^\circ} \quad A'B = 8 \div \frac{\sqrt{3}}{2} = \frac{16\sqrt{3}}{3} \text{ (cm)}$$

$\therefore A'B$  가 지름이므로 반지름은

$$\frac{16\sqrt{3}}{3} \times \frac{1}{2} = \frac{8\sqrt{3}}{3} \text{ (cm)} \text{ 이다.}$$



4. 다음 그림과 같은 □ABCD의 넓이를 구하여라.



- ①  $72 + 45\sqrt{2}(\text{cm}^2)$       ②  $72\sqrt{2} + 45\sqrt{3}(\text{cm}^2)$   
③  $72\sqrt{2} + 45(\text{cm}^2)$       ④  $72\sqrt{2} + 45\sqrt{6}(\text{cm}^2)$   
⑤  $72\sqrt{3} + 45\sqrt{6}(\text{cm}^2)$

해설

$$\sin 60^\circ = \frac{\overline{AC}}{\overline{BC}} = \frac{\overline{AC}}{24} \Rightarrow \frac{\overline{AC}}{24} = \frac{\sqrt{3}}{2}$$

$$\therefore \overline{AC} = 12\sqrt{3}(\text{cm})$$

$$(\square ABCD \text{의 넓이}) = \triangle ABC + \triangle ACD$$

$$= \frac{1}{2} \times 24 \times 12\sqrt{3} \times \sin 30^\circ + \frac{1}{2} \times 12\sqrt{3} \times 15 \times \sin 45^\circ$$

$$= \frac{1}{2} \times 24 \times 12\sqrt{3} \times \frac{1}{2} + \frac{1}{2} \times 12\sqrt{3} \times 15 \times \frac{\sqrt{2}}{2}$$

$$= 72\sqrt{3} + 45\sqrt{6}(\text{cm}^2)$$