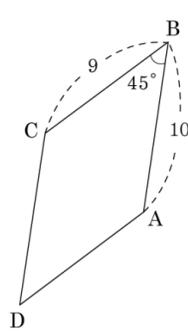


1. 다음과 같은 평행사변형의 넓이를 구하면?

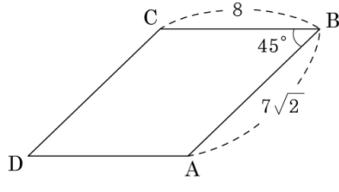
- ① $41\sqrt{2}$ ② $42\sqrt{2}$ ③ $43\sqrt{2}$
④ $44\sqrt{2}$ ⑤ $45\sqrt{2}$



해설

$$\begin{aligned} 9 \times 10 \times \sin 45^\circ &= 9 \times 10 \times \frac{\sqrt{2}}{2} \\ &= 45\sqrt{2} \end{aligned}$$

2. 다음과 같은 평행사변형의 넓이는?

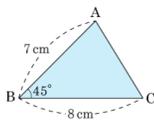


- ① 54 ② 46 ③ 56 ④ 48 ⑤ 60

해설

$$\begin{aligned}(\text{넓이}) &= 7\sqrt{2} \times 8 \times \sin 45^\circ \\ &= 7\sqrt{2} \times 8 \times \frac{\sqrt{2}}{2} = 56\end{aligned}$$

3. 다음 그림의 $\triangle ABC$ 의 넓이는?



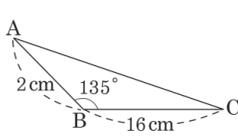
- ① $7\sqrt{2}\text{ cm}^2$ ② $14\sqrt{2}\text{ cm}^2$ ③ $21\sqrt{2}\text{ cm}^2$
④ $28\sqrt{2}\text{ cm}^2$ ⑤ $56\sqrt{2}\text{ cm}^2$

해설

$$\frac{1}{2} \times 7 \times 8 \times \sin 45^\circ = 28 \times \frac{\sqrt{2}}{2} = 14\sqrt{2}(\text{cm}^2)$$

4. 다음 삼각형의 넓이를 구하면?

- ① $7\sqrt{2}\text{cm}^2$ ② $7\sqrt{3}\text{cm}^2$
③ $8\sqrt{2}\text{cm}^2$ ④ $8\sqrt{3}\text{cm}^2$
⑤ $9\sqrt{2}\text{cm}^2$

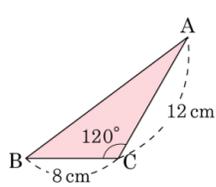


해설

$$\begin{aligned}(\text{넓이}) &= \frac{1}{2} \times 2 \times 16 \times \sin(180^\circ - 135^\circ) \\ &= \frac{1}{2} \times 2 \times 16 \times \sin 45^\circ \\ &= \frac{1}{2} \times 2 \times 16 \times \frac{\sqrt{2}}{2} = 8\sqrt{2} (\text{cm}^2)\end{aligned}$$

5. 다음 그림의 삼각형의 넓이를 옳게 구한 것은?

- ① 24cm^2
- ② $24\sqrt{2}\text{cm}^2$
- ③ $24\sqrt{3}\text{cm}^2$
- ④ 48cm^2
- ⑤ $48\sqrt{2}\text{cm}^2$

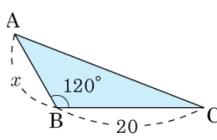


해설

$$\begin{aligned}\Delta ABC &= \frac{1}{2} \times \overline{AC} \times \overline{BC} \times \sin(180^\circ - 120^\circ) \\ &= \frac{1}{2} \times 12 \times 8 \times \frac{\sqrt{3}}{2} \\ &= 24\sqrt{3}(\text{cm}^2)\end{aligned}$$

6. 다음 그림에서 $\overline{BC} = 20$, $\angle B = 120^\circ$ 이고 $\triangle ABC$ 의 넓이가 $40\sqrt{3}$ 일 때, \overline{AB} 의 길이를 구하면?

- ① 8 ② 11 ③ 12
 ④ 13 ⑤ 14



해설

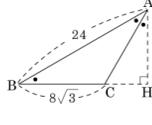
$$\frac{1}{2} \times x \times 20 \times \sin(180^\circ - 120^\circ) = 40\sqrt{3}$$

$$\frac{1}{2} \times x \times 20 \times \sin 60^\circ = 40\sqrt{3}, 10x \times \frac{\sqrt{3}}{2} = 40\sqrt{3}$$

$$5\sqrt{3}x = 40\sqrt{3}$$

따라서 $x = 8$ 이다.

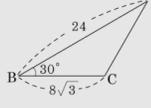
7. 다음 그림과 같은 $\triangle ABC$ 의 넓이를 구하면?



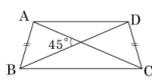
- ① $48\sqrt{6}$ ② $48\sqrt{5}$ ③ $48\sqrt{3}$ ④ $48\sqrt{2}$ ⑤ 48

해설

$$\begin{aligned}(\triangle ABC) &= \frac{1}{2} \times 24 \times 8\sqrt{3} \times \sin 30^\circ \\ &= \frac{1}{2} \times 24 \times 8\sqrt{3} \times \frac{1}{2} \\ &= 48\sqrt{3}\end{aligned}$$



8. 다음 그림과 같이 두 대각선이 이루는 각의 크기가 45° 인 등변사다리꼴 ABCD의 넓이가 $36\sqrt{2}\text{cm}^2$ 일 때, AC의 길이를 구하면?



- ① 8 cm ② 10 cm ③ 12 cm ④ 14 cm ⑤ 16 cm

해설

대각선 $\overline{AC} = \overline{BD} = x$ 라면

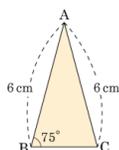
$$x \times x \times \frac{1}{2} \times \sin 45 = 36\sqrt{2}$$

$$x^2 \times \frac{1}{2} \times \frac{\sqrt{2}}{2} = 36\sqrt{2}$$

$$x^2 = 144$$

$$x = 12 \text{ (cm)}$$

9. 다음 그림과 같이 $\angle B = 75^\circ$, $\overline{AB} = \overline{AC} = 6\text{cm}$ 인 $\triangle ABC$ 의 넓이는?

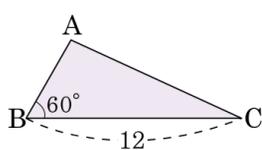


- ① 6 cm^2 ② $6\sqrt{3}\text{ cm}^2$ ③ 9 cm^2
④ $9\sqrt{3}\text{ cm}^2$ ⑤ $12\sqrt{3}\text{ cm}^2$

해설

$\triangle ABC$ 는 이등변삼각형이므로 $\angle B = \angle C = 75^\circ$
따라서 $\angle A = 180^\circ - (75^\circ + 75^\circ) = 30^\circ$ 이고,
 $\triangle ABC = \frac{1}{2} \times 6 \times 6 \times \sin 30^\circ = 9(\text{cm}^2)$ 이다.

10. 다음 그림과 같은 삼각형 ABC의 넓이가 $30\sqrt{3}$ 일 때, \overline{AB} 의 길이는?



- ① 14 ② 13 ③ 12 ④ 11 ⑤ 10

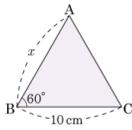
해설

$$\triangle ABC = \frac{1}{2} \times \overline{AB} \times 12 \times \sin 60^\circ = 30\sqrt{3}$$

$$6 \times \overline{AB} \times \frac{\sqrt{3}}{2} = 30\sqrt{3}$$

따라서 $\overline{AB} = 10$ 이다.

11. 다음 그림에서 $\triangle ABC$ 의 넓이가 $50\sqrt{3}\text{cm}^2$ 일 때, x 의 값은?



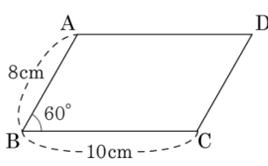
- ① 20cm ② 21cm ③ 22cm ④ 23cm ⑤ 24cm

해설

$$\begin{aligned} 50\sqrt{3} &= \frac{1}{2} \times x \times 10 \times \sin 60^\circ \\ &= \frac{1}{2} \times x \times 10 \times \frac{\sqrt{3}}{2} \\ &= \frac{5\sqrt{3}}{2}x \end{aligned}$$

$$\therefore x = 20(\text{cm})$$

12. 다음 그림에서 $\overline{AB} = 8\text{cm}$, $\overline{BC} = 10\text{cm}$ 이고, 끼인 각의 크기가 60° 인 평행사변형 ABCD 의 넓이 는?

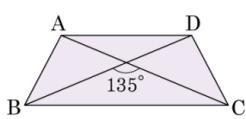


- ① $40\sqrt{3}\text{cm}^2$ ② $30\sqrt{3}\text{cm}^2$ ③ $20\sqrt{3}\text{cm}^2$
 ④ $10\sqrt{3}\text{cm}^2$ ⑤ $5\sqrt{3}\text{cm}^2$

해설

(넓이) = $8 \times 10 \times \sin 60^\circ = 40\sqrt{3}(\text{cm}^2)$ 이다.

13. 다음 그림과 같은 등변사다리꼴 ABCD 에서 두 대각선이 이루는 각의 크기가 135° 이고, 넓이가 $20\sqrt{2}$ 일 때, 대각선의 길이를 구하면?



- ① 8 ② $4\sqrt{5}$ ③ $12\sqrt{3}$
 ④ $52\sqrt{3}$ ⑤ $104\sqrt{3}$

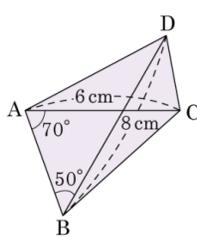
해설

$$\overline{AC} = \overline{BD} = x \text{ 라 하면 } \frac{1}{2}x^2 \sin 45^\circ = 20\sqrt{2}, \quad \frac{\sqrt{2}}{4}x^2 = 20\sqrt{2},$$

$$x^2 = 80, \quad x = 4\sqrt{5}$$

$$\therefore \overline{AC} = \overline{BD} = 4\sqrt{5}$$

14. 다음 그림과 같이 대각선의 길이가 $\overline{AC} = 6\text{ cm}$, $\overline{BD} = 8\text{ cm}$ 인 사각형 ABCD 의 넓이는?



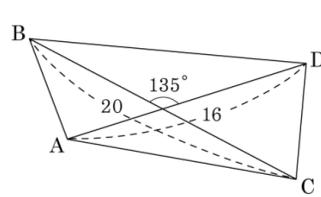
- ① $10\sqrt{3}\text{ cm}^2$ ② $12\sqrt{3}\text{ cm}^2$ ③ $15\sqrt{3}\text{ cm}^2$
 ④ $18\sqrt{3}\text{ cm}^2$ ⑤ $20\sqrt{3}\text{ cm}^2$

해설

$$\begin{aligned} S &= \frac{1}{2} \times 6 \times 8 \times \sin 60^\circ \\ &= \frac{1}{2} \times 6 \times 8 \times \frac{\sqrt{3}}{2} \\ &= 12\sqrt{3}(\text{cm}^2) \end{aligned}$$

15. 사각형 ABCD 의 넓이 는?

- ① $75\sqrt{2}$ ② $80\sqrt{2}$
 ③ $82\sqrt{2}$ ④ $86\sqrt{2}$
 ⑤ $88\sqrt{2}$



해설

$$\begin{aligned}
 & (\square ABCD \text{의 넓이}) \\
 &= \frac{1}{2} \times 20 \times 16 \times \sin(180^\circ - 135^\circ) \\
 &= \frac{1}{2} \times 20 \times 16 \times \sin 45^\circ \\
 &= \frac{1}{2} \times 20 \times 16 \times \frac{\sqrt{2}}{2} = 80\sqrt{2}
 \end{aligned}$$