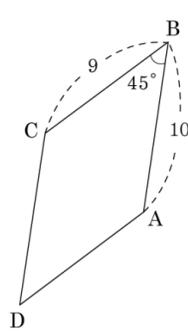


1. 다음과 같은 평행사변형의 넓이를 구하면?

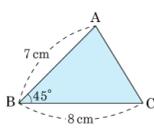
- ①  $41\sqrt{2}$     ②  $42\sqrt{2}$     ③  $43\sqrt{2}$   
④  $44\sqrt{2}$     ⑤  $45\sqrt{2}$



해설

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

2. 다음 그림의  $\triangle ABC$ 의 넓이는?

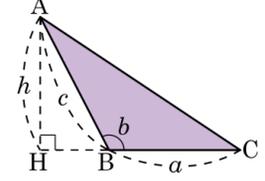


- ①  $7\sqrt{2}\text{ cm}^2$       ②  $14\sqrt{2}\text{ cm}^2$       ③  $21\sqrt{2}\text{ cm}^2$   
④  $28\sqrt{2}\text{ cm}^2$       ⑤  $56\sqrt{2}\text{ cm}^2$

해설

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

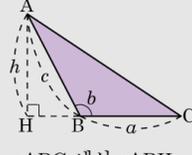
3. 다음은 둔각삼각형에서 두 변의 길이와 그 끼인 각의 크기가 주어질 때, 그 삼각형의 넓이를 구하는 과정이다. □ 안에 공통적으로 들어갈 것은?



$\triangle ABC$  에서  $\angle ABH = 180^\circ - \angle B$   
 $\sin(180^\circ - \angle B) = \frac{h}{\square}$  이므로  
 $h = \square \times \sin(180^\circ - \angle B)$   
 $\therefore \triangle ABC = \frac{1}{2}ah = \frac{1}{2}a \square \sin(180^\circ - \angle B)$

- ①  $\overline{AC}$     ②  $\overline{HB}$     ③  $a$     ④  $c$     ⑤  $h$

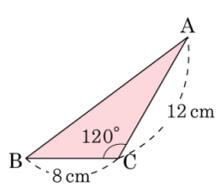
**해설**



$\triangle ABC$  에서  $\angle ABH = 180^\circ - \angle B$   
 $\sin(180^\circ - \angle B) = \frac{h}{c}$  이므로  
 $h = c \times \sin(180^\circ - \angle B)$   
 따라서  $\triangle ABC = \frac{1}{2}ah = \frac{1}{2}ac \sin(180^\circ - \angle B)$  이다.

4. 다음 그림의 삼각형의 넓이를 옳게 구한 것은?

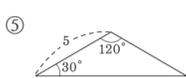
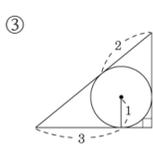
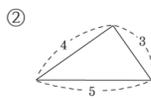
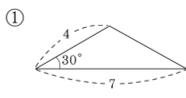
- ①  $24\text{cm}^2$                       ②  $24\sqrt{2}\text{cm}^2$   
③  $24\sqrt{3}\text{cm}^2$                 ④  $48\text{cm}^2$   
⑤  $48\sqrt{2}\text{cm}^2$



해설

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

5. 다음 삼각형 중에서 넓이가 두 번째로 큰 것을 골라라. (단,  $\sqrt{3} = 1.732$ 로 계산한다.)



해설

$$\textcircled{1} S = \frac{1}{2} \times 4 \times 7 \times \frac{1}{2} = 7$$

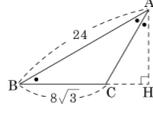
$$\textcircled{2} S = \frac{1}{2} \times 4 \times 3 = 6$$

$$\textcircled{3} S = \frac{1}{2} \times 4 \times 3 = 6$$

$$\textcircled{4} S = \frac{1}{2} \times 6 \times 4 \times \frac{\sqrt{3}}{2} = 6\sqrt{3} = 10.392$$

$$\textcircled{5} S = \frac{1}{2} \times 5 \times 5 \times \frac{\sqrt{3}}{2} = \frac{25\sqrt{3}}{4} = 10.825$$

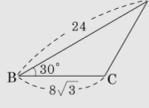
6. 다음 그림과 같은  $\triangle ABC$  의 넓이를 구하면?



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

해설

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



7. 다음 그림과 같이 두 대각선이 이루는 각의 크기가  $45^\circ$  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

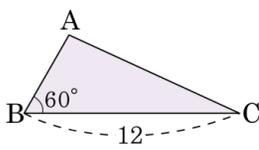
$$x \times x \times \frac{1}{2} \times \sin 45 = 36\sqrt{2}$$

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

$$x^2 = 144$$

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

8. 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

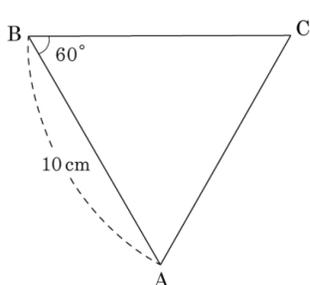
$$\triangle ABC = \frac{1}{2} \times \overline{AB} \times 12 \times \sin 60^\circ = 30\sqrt{3}$$

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

따라서  $\overline{AB} = 10$  이다.

9. 다음 그림과 같은 삼각형 ABC가 있다. 넓이가  $36\text{cm}^2$  일 때,  $\overline{BC}$ 의 길이는?

- ①  $\frac{21\sqrt{3}}{5}\text{cm}$   
 ②  $\frac{22\sqrt{3}}{5}\text{cm}$   
 ③  $\frac{23\sqrt{3}}{5}\text{cm}$   
 ④  $\frac{24\sqrt{3}}{5}\text{cm}$   
 ⑤  $\frac{26\sqrt{3}}{5}\text{cm}$

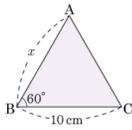


해설

$$\frac{1}{2} \times 10 \times \overline{BC} \times \sin 60^\circ = 36$$

$$\overline{BC} = 36 \times 2 \times \frac{1}{10} \times \frac{2\sqrt{3}}{3} = \frac{24\sqrt{3}}{5} (\text{cm})$$

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

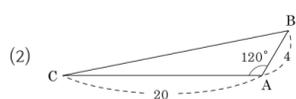
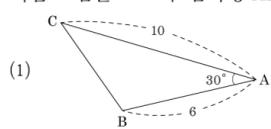


- ① 20cm    ② 21cm    ③ 22cm    ④ 23cm    ⑤ 24cm

해설

$$\begin{aligned} 50\sqrt{3} &= \frac{1}{2} \times x \times 10 \times \sin 60^\circ \\ &= \frac{1}{2} \times x \times 10 \times \frac{\sqrt{3}}{2} \\ &= \frac{5\sqrt{3}}{2}x \\ \therefore x &= 20(\text{cm}) \end{aligned}$$

11. 다음 그림을 보고 두 삼각형 ABC의 넓이는?



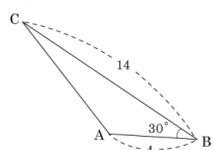
- ① (1)12(2)18  $\sqrt{3}$     ② (1)12(2)20  $\sqrt{3}$     ③ (1)14(2)18  $\sqrt{3}$   
 ④ (1)14(2)20  $\sqrt{3}$     ⑤ (1)15(2)20  $\sqrt{3}$

해설

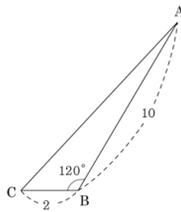
$$\begin{aligned} (1) & \frac{1}{2} \times 10 \times 6 \times \sin 30^\circ \\ &= \frac{1}{2} \times 10 \times 6 \times \frac{1}{2} = 15 \\ (2) & \frac{1}{2} \times 20 \times 4 \times \sin(180^\circ - 120^\circ) \\ &= \frac{1}{2} \times 20 \times 4 \times \sin 60^\circ \\ &= \frac{1}{2} \times 20 \times 4 \times \frac{\sqrt{3}}{2} = 20\sqrt{3} \end{aligned}$$

12. 다음 두 삼각형의 넓이를 구하면?

(1)



(2)



① (1)12, (2)10√3

② (1)12, (2)12√3

③ (1)14, (2)8√3

④ (1)14, (2)9√3

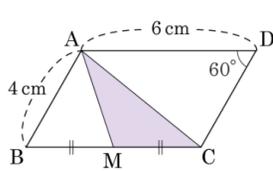
⑤ (1)14, (2)5√3

해설

$$\begin{aligned} (1) \text{ (넓이)} &= \frac{1}{2} \times 4 \times 14 \times \sin 30^\circ \\ &= \frac{1}{2} \times 4 \times 14 \times \frac{1}{2} = 14 \end{aligned}$$

$$\begin{aligned} (2) \text{ (넓이)} &= \frac{1}{2} \times 2 \times 10 \times \sin(180^\circ - 120^\circ) \\ &= \frac{1}{2} \times 2 \times 10 \times \sin 60^\circ = 5\sqrt{3} \end{aligned}$$

13. 다음 그림과 같은 평행사변형 ABCD 에서  $\overline{BC}$  의 중점을 M이라 하자.  $\overline{AB} = 4\text{cm}$ ,  $\overline{AD} = 6\text{cm}$ ,  $\angle D = 60^\circ$  일 때,  $\triangle AMC$  의 넓이는?



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

**해설**

□ABCD 는 평행사변형이므로

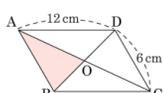
$$\overline{BC} = \overline{AD} = 6\text{cm}, \angle B = \angle D = 60^\circ$$

$$\therefore (\triangle ABC \text{ 의 넓이}) = \frac{1}{2} \times 4 \times 6 \times \sin 60^\circ = 6\sqrt{3}(\text{cm}^2)$$

그런데,  $\triangle AMC = \frac{1}{2} \triangle ABC$  이므로

$$\triangle AMC = \frac{1}{2} \times 6\sqrt{3} = 3\sqrt{3}(\text{cm}^2) \text{ 이다.}$$

14. 다음 그림과 같은 평행사변형 ABCD 에서 대각선  $\overline{AC}$ ,  $\overline{BD}$  의 교점을 O 라고 하자.  $\angle BCD = 60^\circ$ ,  $\overline{AD} = 12\text{cm}$ ,  $\overline{CD} = 6\text{cm}$  일 때,  $\triangle ABO$  의 넓이를 구하면?



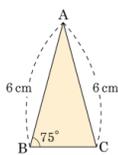
- ①  $9\text{ cm}^2$                       ②  $10\text{ cm}^2$                       ③  $9\sqrt{2}\text{ cm}^2$   
 ④  $9\sqrt{3}\text{ cm}^2$                       ⑤  $10\sqrt{3}\text{ cm}^2$

해설

$$\begin{aligned}
 (\square ABCD \text{의 넓이}) &= 12 \times 6 \times \sin 60^\circ \\
 &= 12 \times 6 \times \frac{\sqrt{3}}{2} \\
 &= 36\sqrt{3} \text{ (cm}^2\text{)}
 \end{aligned}$$

$$\therefore \triangle ABO = 36\sqrt{3} \times \frac{1}{4} = 9\sqrt{3} \text{ (cm}^2\text{)}$$

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



- ①  $6\text{ cm}^2$                       ②  $6\sqrt{3}\text{ cm}^2$                       ③  $9\text{ cm}^2$   
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.