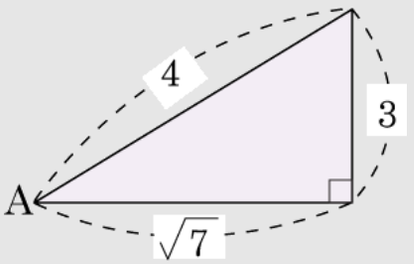
1. $\sin A = \frac{3}{4}$ 일 때, $\cos A + \tan A$ 의 값은?

① $\frac{16\sqrt{7}}{27}$ ② $\frac{17\sqrt{7}}{27}$ ③ $\frac{2\sqrt{7}}{3}$

④ $\frac{19\sqrt{7}}{28}$ ⑤ $\frac{20\sqrt{7}}{27}$

해설



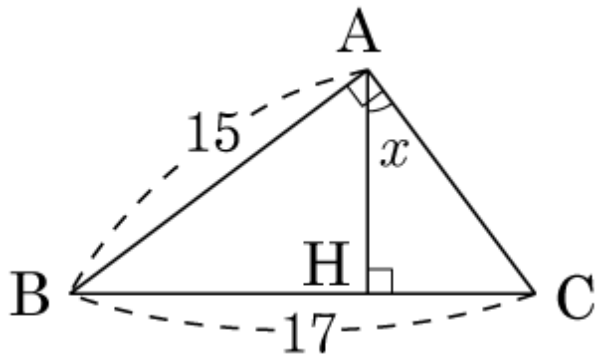
$\sin A = \frac{3}{4}$ 이므로

$\cos A = \frac{\sqrt{7}}{4}$

$\tan A = \frac{3}{\sqrt{7}} = \frac{3\sqrt{7}}{7}$

$\therefore \cos A + \tan A = \frac{\sqrt{7}}{4} + \frac{3\sqrt{7}}{7} = \frac{19\sqrt{7}}{28}$

2. 다음 그림에서 $\angle BAC = 90°$ 이고, $\overline{BC} \perp \overline{AH}$ 이다. $\angle CAH = x$ 라 할 때, $\tan x$ 의 값을 구하여라.



▶ 답 :

▷ 정답 : $\frac{8}{15}$

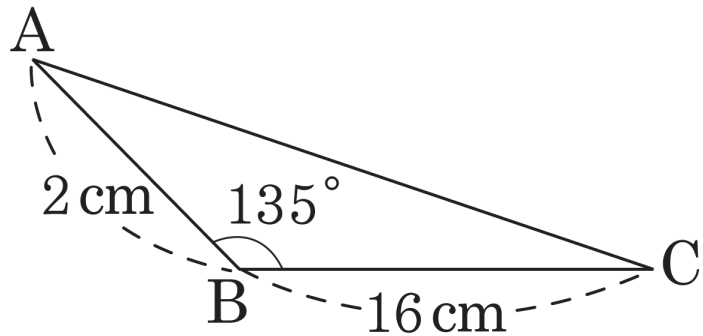
해설

$\overline{AC} = \sqrt{17^2 - 15^2} = 8$

$\triangle ABC \backsim \triangle HAC$ ($\because$ AA 닮음)

$x = \angle ABC$ 이므로 $\tan x = \frac{8}{15}$

3. 다음 삼각형의 넓이를 구하면?



① $7\sqrt{2}\,\mathrm{cm}^2$ ② $7\sqrt{3}\,\mathrm{cm}^2$

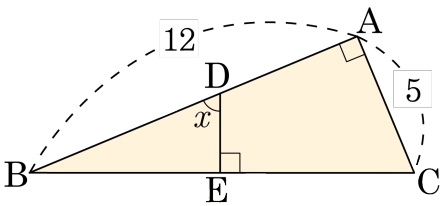
③ $8\sqrt{2}\,\mathrm{cm}^2$ ④ $8\sqrt{3}\,\mathrm{cm}^2$

⑤ $9\sqrt{2}\,\mathrm{cm}^2$

해설

$$(\text{넓이}) = \frac{1}{2} \times 2 \times 16 \times \sin(180° - 135°)$$
$$= \frac{1}{2} \times 2 \times 16 \times \sin 45°$$
$$= \frac{1}{2} \times 2 \times 16 \times \frac{\sqrt{2}}{2} = 8\sqrt{2}\,(\mathrm{cm}^2)$$

4. 다음 그림과 같은 $\triangle ABC$ 에서 $\sin x \times \cos x \times \tan x$ 의 값을 구하여라.



▶ 답:

▷ 정답: $\frac{144}{169}$

해설

$\triangle DBE \backsim \triangle CBA$ (AA 닮음)

$\therefore \angle C = x$

$\overline{BC} = \sqrt{12^2 + 5^2} = \sqrt{169} = 13$

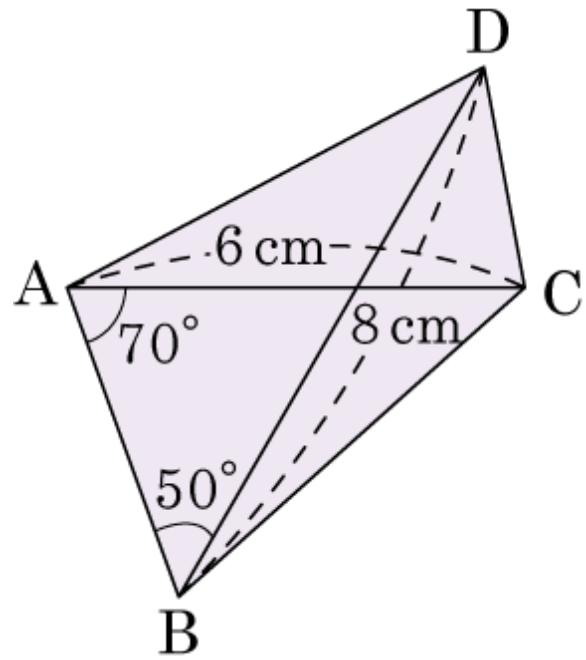
$\sin x = \frac{\overline{AB}}{\overline{BC}} = \frac{12}{13}$

$\cos x = \frac{\overline{AC}}{\overline{BC}} = \frac{5}{13}$

$\tan x = \frac{\overline{AB}}{\overline{AC}} = \frac{12}{5}$

$\therefore \sin x \times \cos x \times \tan x = \frac{144}{169}$

5. 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

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