

22 次のような $\triangle ABC$ の面積を求めよ。【★】

(1) $b = 3, a = 4, C = 30^\circ$

$$\begin{aligned} S &= \frac{1}{2} \cdot a \cdot b \cdot \sin C \\ &= \frac{1}{2} \cdot 3 \cdot 4 \cdot \sin 30^\circ \\ &= 3 \end{aligned}$$

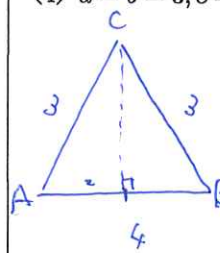
(2) $a = \sqrt{2}, c = 3, B = 135^\circ$

$$\begin{aligned} S &= \frac{1}{2} \cdot \sqrt{2} \cdot 3 \cdot \sin 135^\circ \\ &= \frac{3}{2} \end{aligned}$$

(3) $c = 8, b = 6, A = 120^\circ$

$$\begin{aligned} S &= \frac{1}{2} \cdot b \cdot c \cdot \sin A \\ &= 12\sqrt{3} \end{aligned}$$

(4) $a = b = 3, c = 4$



ABの中点 M をとる。

$$AM = 2.$$

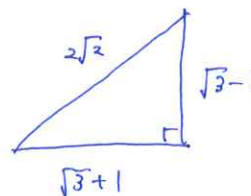
$$MC^2 = 9 - 4 = 5.$$

$$MC = \sqrt{5}$$

$$\therefore S = \frac{1}{2} \cdot 4 \cdot \sqrt{5}$$

$$= 2\sqrt{5}$$

(5) $a = 2\sqrt{2}, b = \sqrt{3} + 1, c = \sqrt{3} - 1$



$$a^2 = 8$$

$$b^2 = 4 + 2\sqrt{3}$$

$$c^2 = 4 - 2\sqrt{3}$$

$$\therefore a^2 = b^2 + c^2 \text{ 成り立つ.}$$

$\therefore \triangle ABC$ は 余弦定理より
直角三角形。

$$S = \frac{1}{2} \cdot (\sqrt{3} + 1) \cdot (\sqrt{3} - 1)$$

$$= 1$$