数学 I 計算力チェック

_____年_____組_____番　名前_____

1. 次の $\triangle ABC$ の面積 S を求めよ。
   （図を書いて考えよ）
   (1) $AB = 3,\ BC = 6,\ \angle ABC = 45°$

   (2) $AB = 4,\ AC = 6,\ \angle BAC = 60°$

   (3) $AB = 5,\ AC = 8,\ \angle BAC = 150°$

   (4) $AC = 4,\ BC = 7,$
       $\angle ABC = 30°,\ \angle BAC = 105°$

解答

(1) $S = \dfrac{1}{2} \cdot BC \cdot AB \cdot \sin \angle 45°$

$\quad = \dfrac{1}{2} \cdot 6 \cdot 3 \cdot \dfrac{\sqrt{2}}{2} = \dfrac{9\sqrt{2}}{2}$

(2) $S = \dfrac{1}{2} \cdot AB \cdot AC \cdot \sin \angle 60°$

$\quad = \dfrac{1}{2} \cdot 4 \cdot 6 \cdot \dfrac{\sqrt{3}}{2} = 6\sqrt{3}$

(3) $S = \dfrac{1}{2} \cdot AB \cdot AC \cdot \sin \angle 150°$

$\quad = \dfrac{1}{2} \cdot 5 \cdot 8 \cdot \dfrac{1}{2} = 10$

(4) $\angle ACB = 180° - (\angle ABC + \angle BAC)$

$\quad\quad\quad = 180° - (30° + 105°) = 45°$

$S = \dfrac{1}{2} \cdot BC \cdot AC \cdot \sin \angle 45°$

$\quad = \dfrac{1}{2} \cdot 7 \cdot 4 \cdot \dfrac{\sqrt{2}}{2} = 7\sqrt{2}$