

(1) $\sin A = \frac{2}{7}$, $\cos A = \frac{3}{7}$ のとき, $\tan A$ の値を求めよ.

$$\tan A = \frac{\sin A}{\cos A} = \frac{\frac{2}{7}}{\frac{3}{7}} = \frac{\frac{2}{7} \times 7}{\frac{3}{7} \times 7} = \frac{2}{3}$$

(2) $\sin A = \frac{14}{3}$, $\cos A = \frac{7}{3}$ のとき, $\tan A$ の値を求めよ.

$$\tan A = \frac{\sin A}{\cos A} = \frac{\frac{14}{3}}{\frac{7}{3}} = \frac{\frac{14}{3} \times 3}{\frac{7}{3} \times 3} = \frac{14}{7} = 2$$

(3) $\cos A = \frac{2}{5}$, $\tan A = \frac{7}{2}$ のとき, $\sin A$ の値を求めよ.

$$\sin A = \cos A \cdot \tan A = \frac{2}{5} \times \frac{7}{2} = \frac{7}{5}$$

(4) $\cos A = \frac{3}{10}$, $\tan A = \frac{5}{3}$ のとき, $\sin A$ の値を求めよ.

$$\sin A = \cos A \cdot \tan A = \frac{3}{10} \times \frac{5}{3} = \frac{5}{10} = \frac{1}{2}$$

(5) A は鋭角とする. $\sin A = \frac{2}{5}$ のとき, $\cos A$ の値を求めよ.

$$\sin^2 A + \cos^2 A = 1 \text{ から } \cos^2 A = 1 - \sin^2 A = 1 - \left(\frac{2}{5}\right)^2 = \frac{25}{25} - \frac{4}{25} = \frac{21}{25}$$

A が鋭角なので $\cos A > 0$

$$\text{よって } \cos A = \sqrt{\frac{21}{25}} = \frac{\sqrt{21}}{\sqrt{25}} = \frac{\sqrt{21}}{5}$$

(6) A は鋭角とする. $\cos A = \frac{1}{4}$ のとき, $\sin A$ の値を求めよ.

$$\sin^2 A + \cos^2 A = 1 \text{ から } \sin^2 A = 1 - \cos^2 A = 1 - \left(\frac{1}{4}\right)^2 = \frac{16}{16} - \frac{1}{16} = \frac{15}{16}$$

A が鋭角なので $\sin A > 0$

$$\text{よって } \sin A = \sqrt{\frac{15}{16}} = \frac{\sqrt{15}}{\sqrt{16}} = \frac{\sqrt{15}}{4}$$