

Sankaku?



$\sin \theta + \cos \theta = \frac{1}{2}$  であるとき、次の値を求めよ。

(1)  $\sin \theta \cos \theta$

(2)  $\sin^3 \theta + \cos^3 \theta$

(1) 与式の両辺を2乗すると

$$(\sin \theta + \cos \theta)^2 = \frac{1}{4}$$

$$\sin^2 \theta + 2 \sin \theta \cos \theta + \cos^2 \theta = \frac{1}{4}$$

$$2 \sin \theta \cos \theta + 1 = \frac{1}{4}$$

$$2 \sin \theta \cos \theta = -\frac{3}{4}$$

$$\sin \theta \cos \theta = -\frac{3}{8}$$

(2)  $\sin^3 \theta + \cos^3 \theta = (\sin \theta + \cos \theta)(\sin^2 \theta - \sin \theta \cos \theta + \cos^2 \theta)$

$$= \frac{1}{2} \cdot \left\{ 1 - \left(-\frac{3}{8}\right) \right\}$$

$$= \frac{1}{2} \cdot \frac{11}{8}$$

$$= \frac{11}{16}$$