

kahoulvl-4



関数 $y = \sqrt{3} \sin x + \cos x$ の最大値, 最小値を求めよ。



$$y = 2 \left(\frac{\sqrt{3}}{2} \sin x + \frac{1}{2} \cos x \right)$$

$$\cos \frac{\pi}{6} = \frac{\sqrt{3}}{2} \quad \sin \frac{\pi}{6} = \frac{1}{2} \text{ 51}$$

$$y = 2 \left(\cos \frac{\pi}{6} \sin x + \sin \frac{\pi}{6} \cos x \right)$$

$$y = 2 \sin \left(x + \frac{\pi}{6} \right)$$

$$-1 \leq \sin \left(x + \frac{\pi}{6} \right) \leq 1 \text{ 78 の } \pi$$

$$\rightarrow -2 \leq 2 \sin \left(x + \frac{\pi}{6} \right) \leq 2 \text{ 278 } \quad -2 \leq y \leq 2 \text{ 178}$$

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$$\sin \left(x + \frac{\pi}{6} \right) = 1 \text{ 278 } \quad x + \frac{\pi}{6} = \frac{\pi}{2}$$

$$x = \frac{\pi}{3}$$

$$\sin \left(x + \frac{\pi}{6} \right) = -1 \text{ 178 } \quad x + \frac{\pi}{6} = \frac{3}{2}\pi$$

$$x = \frac{4}{3}\pi$$

$$\frac{12}{12} \text{ 最大値は } x = \frac{\pi}{3} \text{ 278 } 2$$

$$\frac{12}{12} \text{ 最小値は } x = \frac{4}{3}\pi \text{ 278 } -2$$