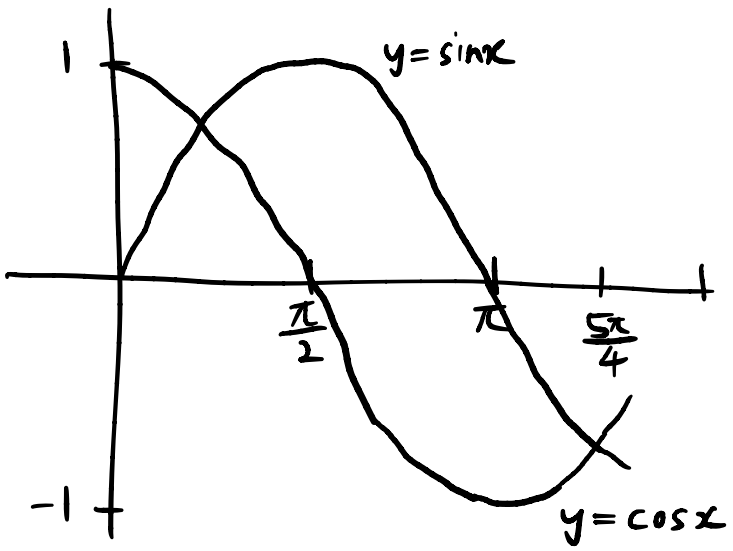
Compute the area between two consecutive intersection points of $y = \sin x$ and $y = \cos x$.



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$\sin x = \cos x$

$\frac{\sin x}{\cos x} = 1$

$\tan x = 1$

$x = \frac{\pi}{4}, \frac{5\pi}{4}$

Area between 0 to π

$= \int_{\frac{\pi}{4}}^{\pi} \sin x\,dx - \int_{\frac{\pi}{4}}^{\frac{\pi}{2}} \cos x\,dx$

$= -\cos x \Big|_{\frac{\pi}{4}}^{\pi} - \sin x \Big|_{\frac{\pi}{4}}^{\frac{\pi}{2}}$

$= -(\cos\pi - \cos\frac{\pi}{4}) - (\sin\frac{\pi}{2} - \sin\frac{\pi}{4})$

$= -(-1 - \frac{\sqrt{2}}{2}) - (1 - \frac{\sqrt{2}}{2})$

$= \frac{2+\sqrt{2}}{2} - \frac{2-\sqrt{2}}{2}$

$= \sqrt{2}$

Area between π to $\frac{5\pi}{4}$

$= \int_{\frac{\pi}{2}}^{\frac{5\pi}{4}} \cos x\,dx - \int_{\pi}^{\frac{5\pi}{4}} \sin x\,dx$

$= \sin x \Big|_{\frac{\pi}{2}}^{\frac{5\pi}{4}} + \cos x \Big|_{\pi}^{\frac{5\pi}{4}}$

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

$= -\frac{\sqrt{2}}{2} - 1 - \frac{\sqrt{2}}{2} + 1$

$= -\sqrt{2}$

$\therefore$ Total area

$= \sqrt{2} + \sqrt{2}$

$= 2\sqrt{2}$