5.4 The SUM and DIFFERENCE Identities (Day 1)

Consider: $\cos(x + y)$

NOTE:

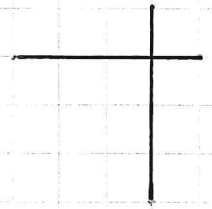
Counterexample:

The Actual Identity:

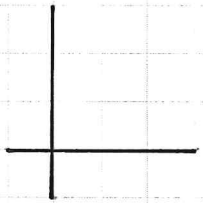
NOTE:

CAUTION:

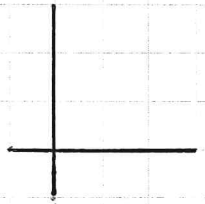
Ex. ① Find the EXACT value of $\cos\left(\frac{5\pi}{4} - \frac{\pi}{6}\right)$.

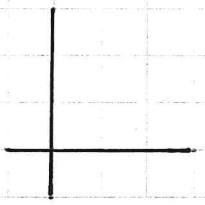


Now, $\cos\left(\frac{5\pi}{4} - \frac{\pi}{6}\right) =$



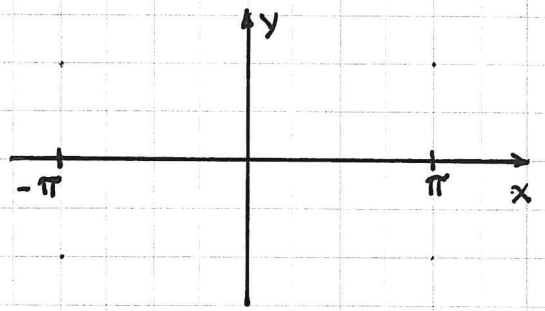
Ex. ② Find the EXACT value of $\cos(15°)$.



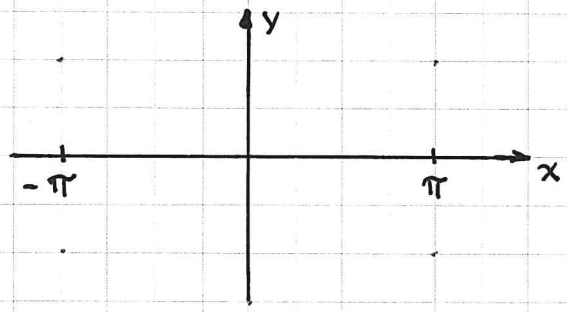


What about $\cos(x-y)$?

Recall:



$\sin(x)$ is an



$\cos(x)$ is an

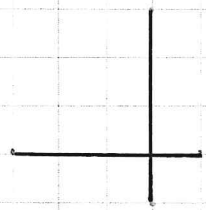
Ex. ③ Note that: $\cos(x-y) =$

And so, $\cos(x-y) =$

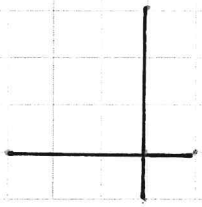
Ex. ④ Find the EXACT value of $\cos(105°)$.

Ex. ⑤ Given that $\sin u = 4/5$ and $\cos v = -12/13$ (both $u \& v$ in Q II)

Find a) $\cos(u+v)$



b) $\cos(u-v)$



Ex. ⑥ Find the EXACT value of

$$\cos 22^\circ \cos 23^\circ - \sin 22^\circ \sin 23^\circ$$

Ex. ⑦ Find $\cos(\pi/2 - \alpha)$