

Have your trig identity sheet out

Make sure you have those identities on your paper

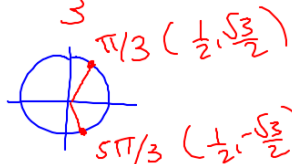
26. $\cos(x+y) = \cos x \cos y - \sin x \sin y$
 27. $\cos(x-y) = \cos x \cos y + \sin x \sin y$
 28. $\sin(x+y) = \sin x \cos y + \sin y \cos x$
 29. $\sin(x-y) = \sin x \cos y - \sin y \cos x$

32. $\sin 2u = 2 \sin u \cos u$
 33. $\cos 2u = \begin{cases} \cos^2 u - \sin^2 u \\ 2 \cos^2 u - 1 \\ 1 - 2 \sin^2 u \end{cases}$
 34. $\tan 2u = \frac{2 \tan u}{1 - \tan^2 u}$
 35. $\sin^2 u = \frac{1 - \cos 2u}{2}$
 36. $\cos^2 u = \frac{1 + \cos 2u}{2}$
 37. $\tan^2 u = \frac{1 - \cos 2u}{1 + \cos 2u}$

39) $2 \cos x = 1$

$\cos x = \frac{1}{2}$

$\frac{\pi}{3}, \frac{5\pi}{3}$



$-1 \leq \sin x \leq 1$

$-1 \leq \cos x \leq 1$

41. $\sin^2 x - 2 \sin x - 3 = 0$

$t^2 - 2t - 3 = 0$

$\begin{matrix} -3 \\ 1 \end{matrix} \begin{matrix} -3 \\ -2 \end{matrix}$

$(t+1)(t-3)$

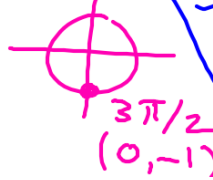
$(\sin x - 3)(\sin x + 1) = 0$

$\sin x = 3$

$\sin \& \cos \neq 1$

$\sin x = -1$

$x = \frac{3\pi}{2}$



$$\textcircled{\circ} \quad \sin \overset{a}{(3x)} - \sin \overset{b}{(x)} = 0$$

Sum to Product

$$\sin a - \sin b$$

$$= 2 \cos \frac{3x+x}{2} \sin \frac{3x-x}{2} = 0 \quad = 2 \cos \frac{a+b}{2} \sin \frac{a-b}{2}$$

$$2 \cos 2x \sin x = 0$$

$\downarrow \pm 33^\circ$

$$2 (1 - 2 \sin^2 x) \sin x = 0 \quad \text{ZPT}$$



$$\sin x = 0$$

$$x = 0$$

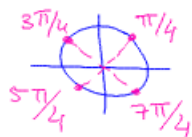
$$x = \pi$$

$$1 - 2 \sin^2 x = 0$$

$$\frac{1}{2} = \frac{2 \sin^2 x}{2}$$

$$\sin^2 x = \frac{1}{2}$$

$$\sin x = \pm \frac{\sqrt{2}}{2}$$



$$x = \pi/4$$

$$x = 3\pi/4$$

$$x = 5\pi/4$$

$$x = 7\pi/4$$



$$42. \cos 2t = \cos t - \cos t$$

$$\cos 2u = 2\cos^2 u - 1$$

I 33 B.

$$\cos 2t - \cos t = 0$$

I 33 B

$$\cos x = -\frac{1}{2} \quad \cos x = 1$$

$$\textcircled{2} \cos^2 - 1 - \cos t$$

$$2\cos^2 - \cos - 1 = 0$$

$$\left(\cos x - \frac{1}{2}\right) \left(\cos x - \frac{2}{2}\right)$$

$$2u^2 - u - 1 = 0$$

$$\begin{matrix} -2 & -1 \\ -2 & 1 \end{matrix}$$

$$x = \frac{2\pi}{3}, \frac{4\pi}{3}, 0$$



$$43) \sin(\cos x) = 1$$

$$\sin(\cos x) = 1$$

$$\cos x = a$$

$$\sin(a) = 1$$

$$a = \frac{\pi}{2} \quad \cos x = \frac{\pi}{2} > 1$$

no solutions

composition
of functions.

$\sin(\cos x)$

$$44. \cos 2x + 5 \cos x = \frac{2}{-2} - \frac{2}{-2}$$

$$\cos 2x + 5 \cos x - 2 = 0$$

$$2 \cos^2 x - 1 + 5 \cos x - 2 = 0$$

$$2 \cos^2 x + 5 \cos x - 3 = 0$$

$$\begin{array}{r} -6 \\ 6 \end{array} \begin{array}{r} -1 \\ 5 \end{array}$$

$$(\cos x + \frac{6}{2})(\cos x - \frac{1}{2})$$

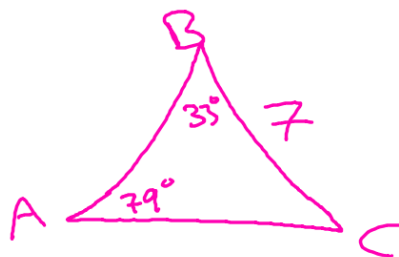
$$\cos x = -3$$

$$\cos x = 1/2$$



$$x = \pi/3, 5\pi/3$$

SI



$$A = 79^\circ$$

$$B = 33^\circ$$

$$a = 7$$

AAS

$$\frac{\sin 79}{7} = \frac{\sin 33}{b} = \frac{\sin 69}{c}$$

$$b \sin 79 = (\sin 33)(7)$$

$$b = 3.89$$

$$c = 6.66$$

$$(\sin 33)(c) = (\sin 69)(3.89)$$

$$c = 6.66$$

OR

$$(\sin 79)(c) = (\sin 69)(7)$$

$$c = 6.66$$