

ملخص درس الحساب المثلثى

FORMULAIRE DE TRIGONOMETRIE

$\cos^2 \alpha + \sin^2 \alpha = 1$	$\cos 0 = 1$	$\cos 30^\circ = \frac{\sqrt{3}}{2}$	$\cos 45^\circ = \frac{\sqrt{2}}{2}$	$\cos 60^\circ = \frac{1}{2}$	$\cos \frac{\pi}{2} = 0$
$\operatorname{tg} \alpha = \frac{\sin \alpha}{\cos \alpha}$	$\sin 0 = 0$	$\sin 30^\circ = \frac{1}{2}$	$\sin 45^\circ = \frac{\sqrt{2}}{2}$	$\sin 60^\circ = \frac{\sqrt{3}}{2}$	$\sin \frac{\pi}{2} = 1$
$\operatorname{cotg} \alpha = \frac{1}{\operatorname{tg} \alpha}$	$\operatorname{tg} 0 = 0$	$\operatorname{tg} 30^\circ = \frac{1}{\sqrt{3}}$	$\operatorname{tg} 45^\circ = 1$	$\operatorname{tg} 60^\circ = \sqrt{3}$	$\operatorname{tg} \frac{\pi}{2} : \text{infinie}$
$\cos^2 \alpha = \frac{1}{1 + \operatorname{tg}^2 \alpha}$	$\operatorname{cotg} 0 : \text{infinie}$	$\operatorname{cotg} 30^\circ = \sqrt{3}$	$\operatorname{cotg} 45^\circ = 1$	$\operatorname{cotg} 60^\circ = \frac{1}{\sqrt{3}}$	$\operatorname{cotg} \frac{\pi}{2} = 0$
$\sin^2 \alpha = \frac{\operatorname{tg}^2 \alpha}{1 + \operatorname{tg}^2 \alpha}$		$\operatorname{tg} 30^\circ = \frac{\sqrt{3}}{3}$		$= \frac{\sqrt{3}}{3}$	

$\cos(-\alpha) = \cos \alpha$	$\cos(\pi - \alpha) = -\cos \alpha$	$\cos(\pi + \alpha) = -\cos \alpha$	$\cos\left(\frac{\pi}{2} - \alpha\right) = \sin \alpha$	$\cos\left(\frac{\pi}{2} + \alpha\right) = -\sin \alpha$
$\sin(-\alpha) = -\sin \alpha$	$\sin(\pi - \alpha) = \sin \alpha$	$\sin(\pi + \alpha) = -\sin \alpha$	$\sin\left(\frac{\pi}{2} - \alpha\right) = \cos \alpha$	$\sin\left(\frac{\pi}{2} + \alpha\right) = \cos \alpha$
$\operatorname{tg}(-\alpha) = -\operatorname{tg} \alpha$	$\operatorname{tg}(\pi - \alpha) = -\operatorname{tg} \alpha$	$\operatorname{tg}(\pi + \alpha) = \operatorname{tg} \alpha$	$\operatorname{tg}\left(\frac{\pi}{2} - \alpha\right) = \operatorname{cotg} \alpha$	$\operatorname{tg}\left(\frac{\pi}{2} + \alpha\right) = -\operatorname{cotg} \alpha$
$\operatorname{cotg}(-\alpha) = -\operatorname{cotg} \alpha$	$\operatorname{cotg}(\pi - \alpha) = -\operatorname{cotg} \alpha$	$\operatorname{cotg}(\pi + \alpha) = \operatorname{cotg} \alpha$	$\operatorname{cotg}\left(\frac{\pi}{2} - \alpha\right) = \operatorname{tg} \alpha$	$\operatorname{cotg}\left(\frac{\pi}{2} + \alpha\right) = -\operatorname{tg} \alpha$

$\cos(a + b) = \cos a \cos b - \sin a \sin b$	$\cos 2a = \cos^2 a - \sin^2 a$	$1 + \cos a = 2 \cos^2 \frac{a}{2}$
$\cos(a - b) = \cos a \cos b + \sin a \sin b$	$\cos 2a = 2 \cos^2 a - 1$	$1 - \cos a = 2 \sin^2 \frac{a}{2}$
$\sin(a + b) = \sin a \cos b + \cos a \sin b$	$\cos 2a = 1 - 2 \sin^2 a$	$\sin a = 2 \sin \frac{a}{2} \cos \frac{a}{2}$
$\sin(a - b) = \sin a \cos b - \cos a \sin b$	$\sin 2a = 2 \sin a \cos a$	$\cos a = \frac{1 - t^2}{1 + t^2} \left(\operatorname{tg} \frac{a}{2} = t \right)$
$\operatorname{tg}(a + b) = \frac{\operatorname{tg} a + \operatorname{tg} b}{1 - \operatorname{tg} a \operatorname{tg} b}$	$\operatorname{tg} 2a = \frac{2 \operatorname{tg} a}{1 - \operatorname{tg}^2 a}$	$\sin a = \frac{2t}{1 + t^2}$
$\operatorname{tg}(a - b) = \frac{\operatorname{tg} a - \operatorname{tg} b}{1 + \operatorname{tg} a \operatorname{tg} b}$	$\cos^2 a = \frac{1 + \cos 2a}{2}$	$\operatorname{tg} a = \frac{2t}{1 - t^2}$
	$\sin^2 a = \frac{1 - \cos 2a}{2}$	
	$\operatorname{tg}^2 a = \frac{1 - \cos 2a}{1 + \cos 2a}$	

$\cos a \cos b = \frac{1}{2} [\cos(a + b) + \cos(a - b)]$	$\cos p + \cos q = 2 \cos \frac{p + q}{2} \cos \frac{p - q}{2}$	$\operatorname{tg} p + \operatorname{tg} q = \frac{\sin(p + q)}{\cos p \cos q}$
$\sin a \sin b = \frac{1}{2} [\cos(a - b) - \cos(a + b)]$	$\cos p - \cos q = -2 \sin \frac{p + q}{2} \sin \frac{p - q}{2}$	$\operatorname{tg} p - \operatorname{tg} q = \frac{\sin(p - q)}{\cos p \cos q}$
$\sin a \cos b = \frac{1}{2} [\sin(a + b) + \sin(a - b)]$	$\sin p + \sin q = 2 \sin \frac{p + q}{2} \cos \frac{p - q}{2}$	
	$\sin p - \sin q = 2 \sin \frac{p - q}{2} \cos \frac{p + q}{2}$	