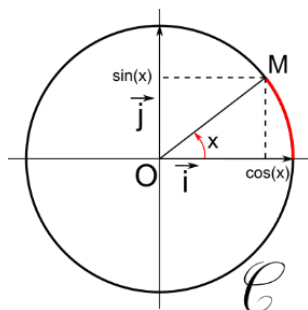




OM 1 - Trigonométrie

✓ Le cercle trigonométrique



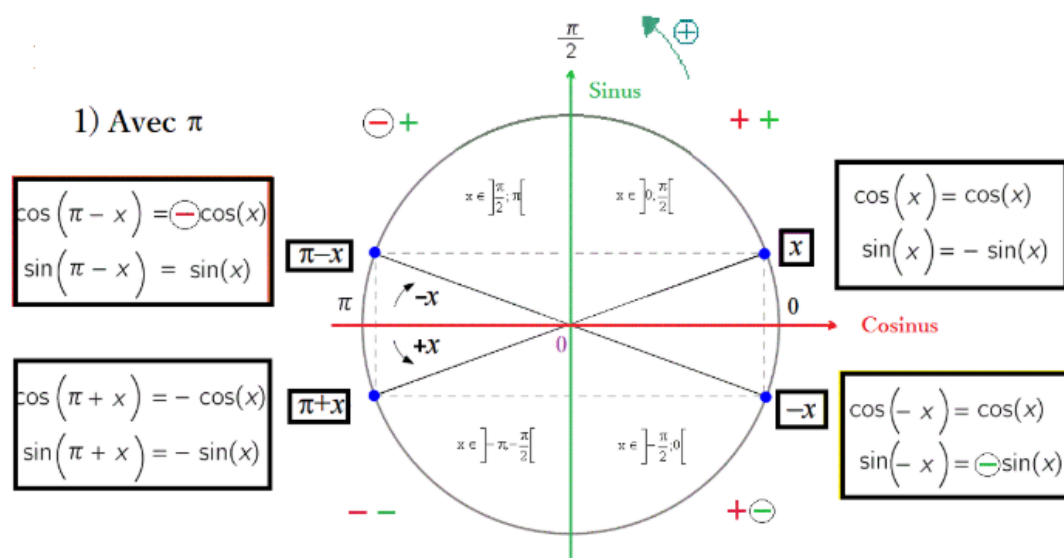
✓ Relations fondamentales

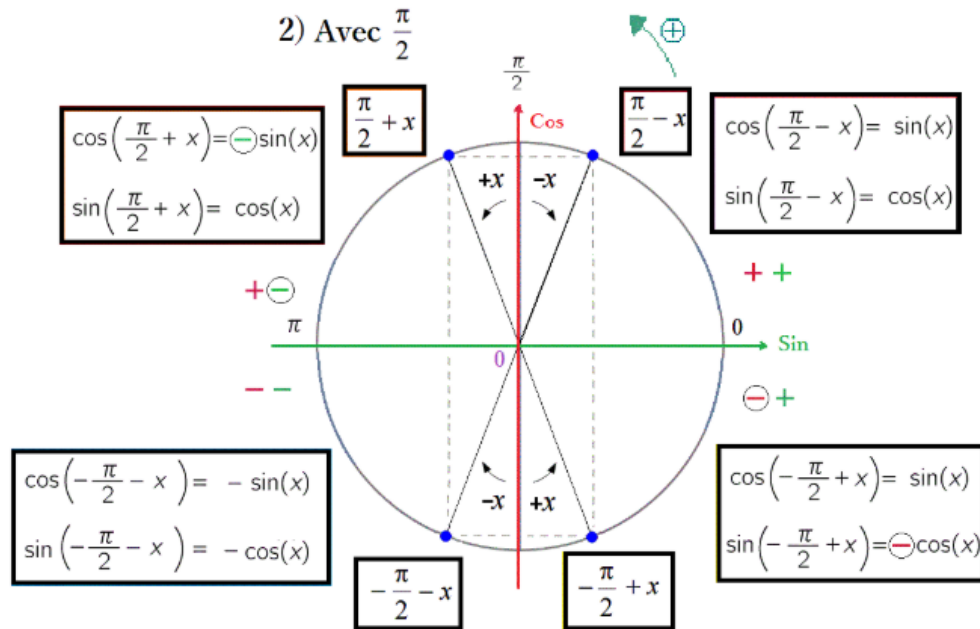
$$\sin^2(x) + \cos^2(x) = 1 \quad 1 + \tan^2(x) = \frac{1}{\cos^2(x)}$$

✓ Valeurs et relations particulières

	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$	π
cosinus	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0	-1
sinus	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1	0

Les relations suivantes sont à retrouver grâce au cercle trigonométrique.





✓ Formules d'addition

$$\cos(a + b) = \cos a \cos b - \sin a \sin b$$

$$\sin(a + b) = \sin a \cos b + \cos a \sin b$$

$$\cos(a - b) = \cos a \cos b + \sin a \sin b$$

$$\sin(a - b) = \sin a \cos b - \cos a \sin b$$

✓ Duplication

$$\cos 2a = \cos^2 a - \sin^2 a = 2 \cos^2 a - 1 = 1 - 2 \sin^2 a$$

$$\sin 2a = 2 \sin a \cos a$$

✓ Formules de linéarisation

$$\cos a \cos b = \frac{1}{2}(\cos(a + b) + \cos(a - b)) \quad \sin a \sin b = \frac{1}{2}(\cos(a + b) - \cos(a - b))$$

$$\sin a \cos b = \frac{1}{2}(\sin(a + b) + \sin(a - b))$$

$$\cos^2 a = \frac{1 + \cos 2a}{2}$$

$$\sin^2 a = \frac{1 - \cos 2a}{2}$$

$$\sin a \cos a = \frac{\sin 2a}{2}$$

✓ Transformation d'une somme en produit

$$\cos p + \cos q = 2 \cos \frac{p+q}{2} \cos \frac{p-q}{2}$$

$$\cos p - \cos q = -2 \sin \frac{p+q}{2} \sin \frac{p-q}{2}$$

$$\sin p + \sin q = 2 \sin \frac{p+q}{2} \cos \frac{p-q}{2}$$

$$\sin p - \sin q = 2 \cos \frac{p+q}{2} \sin \frac{p-q}{2}$$