

Semana 4: Trigonometria

1. Calcule $\sin(2\pi/3)$, $\cos(7\pi/6)$, $\operatorname{tg}(-3\pi/4)$, $\sin(35\pi/3)$, $\cos(17\pi/4)$, $\operatorname{cotg}(-5\pi/6)$, $\sin 75^\circ$ e $\cos 105^\circ$.
2. Calcule
 - a) $\arcsen \frac{\sqrt{3}}{2}$,
 - b) $\arccos -\frac{\sqrt{2}}{2}$,
 - c) $\operatorname{arctg} \sqrt{3}$,
 - d) $\sin(\arccos \frac{2}{7})$,
 - e) $\cos(\arcsen \frac{3}{5})$,
 - f) $\operatorname{tg}(\arcsen \frac{5}{6})$,
 - g) $\cos(\arcsen(-\frac{1}{3}))$,
 - h) $\sin(\operatorname{arctg} \frac{1}{\sqrt{2}})$,
 - i) $\operatorname{tg}(\arcsen(-\frac{1}{2}))$.
3. Calcule $\sin(\alpha - \beta)$ sabendo que α e β são ângulos do 3^o e do 4^o quadrantes, respetivamente, e que $\cos(3\pi + \alpha) = \frac{\sqrt{5}}{5}$ e $\cos(\frac{\pi}{2} + \beta) = \frac{1}{2}$.
4. Sabendo que $\operatorname{tg}(\alpha) = \frac{-\sqrt{5}}{2}$ e que α é um ângulo do 4^o quadrante, determine:
 - a) $\sin(\alpha/2)$
 - b) $\sin(2\alpha)$
 - c) $\cos(\alpha/2)$
 - d) $\cos(2\alpha)$
 - e) $\operatorname{cotg}(\alpha/2)$
 - f) $\operatorname{tg}(2\alpha)$.
5. Determine
 - (a) $\arcsin(1) - \arcsin(-\sqrt{2}/2)$;
 - (b) $\cos(\arcsin(\sqrt{3}/2) + \cos(\arcsin(-\sqrt{3}/2))$;
 - (c) $\operatorname{cotg}(\arcsin(1/2)) + \sin(\operatorname{arctg}(-1))$.