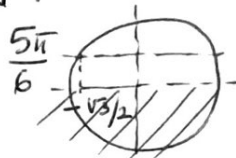


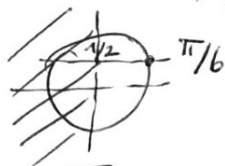
# Fonctions trigonométriques réciproques

## CORRECTION.

$$\textcircled{1} \quad \arccos\left(-\frac{\sqrt{3}}{2}\right) = \frac{5\pi}{6}$$



$$\arcsin\left(\frac{1}{2}\right) = \frac{\pi}{6}$$



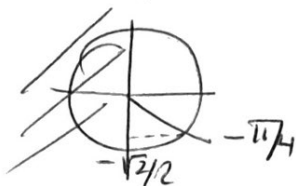
$$\arctan(-1) = -\frac{\pi}{4}$$

$3\pi/4$

$$\arccos\left(-\frac{\sqrt{2}}{2}\right) = \frac{3\pi}{4}$$



$$\arcsin\left(-\frac{\sqrt{2}}{2}\right) = -\frac{\pi}{4}$$



### Exercice 2.

①. Remarquer que montrer que

$$0 < \arccos\left(\frac{3}{4}\right) < \frac{\pi}{4}$$

c'est montrer que  $\arccos(1) < \arccos\left(\frac{3}{4}\right) < \arccos\left(\frac{\sqrt{2}}{2}\right)$ .

$$\text{On a } \frac{\sqrt{2}}{2} < \frac{3}{4} < 1$$

$$\text{donc } \arccos\left(\frac{\sqrt{2}}{2}\right) > \arccos\left(\frac{3}{4}\right) > \arccos(1)$$

car  $x \mapsto \arccos(x)$  est strictement décroissante

$$\text{Ainsi } \boxed{\frac{\pi}{4} > \arccos\left(\frac{3}{4}\right) > 0}$$

$$\textcircled{2} \quad \arccos(x) = 2 \arccos\left(\frac{3}{4}\right)$$

$\Leftrightarrow$

$$x = \cos\left(2 \arccos\left(\frac{3}{4}\right)\right)$$

car  $2 \arccos\left(\frac{3}{4}\right) \in [0, \pi]$   
d'après Question 1

$\Leftrightarrow$

$$x = 2 \cos^2\left(\arccos\left(\frac{3}{4}\right)\right) - 1$$

$\Leftrightarrow$

$$x = 2 \left(\frac{3}{4}\right)^2 - 1$$

$\Leftrightarrow$

$$x = 2 \cdot \frac{9}{16} - 1$$

$\Leftrightarrow$

$$x = \frac{1}{8}$$

$$\boxed{I = \left\{ \frac{1}{8} \right\}}$$