

Exercice 1

1. Sur le cercle trigonométrique ci-joint, placer les points  $A_i$  tels que

$$(\vec{OI}; \vec{OA_1}) = \frac{3\pi}{4} + 2k\pi, k \in \mathbb{Z}$$

$$(\vec{OI}; \vec{OA_2}) = \frac{-7\pi}{6} + 2k\pi, k \in \mathbb{Z}$$

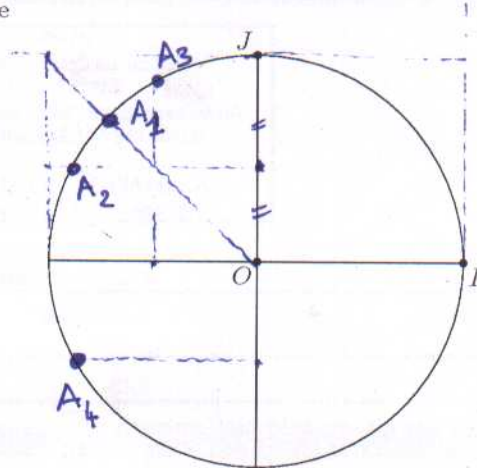
$$(\vec{OI}; \vec{OA_3}) = \frac{14\pi}{3} + 2k\pi, k \in \mathbb{Z}$$

$$(\vec{OI}; \vec{OA_4}) = \frac{-125\pi}{6} + 2k\pi, k \in \mathbb{Z}$$

$$-\frac{125\pi}{6} = -\frac{120\pi}{6} - \frac{5\pi}{6} = -20\pi - \frac{5\pi}{6}$$

2. Compléter :  $\cos(\frac{-7\pi}{6}) = -\frac{\sqrt{3}}{2}$

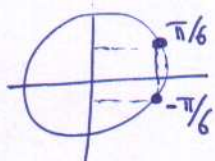
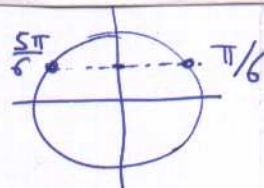
$\sin(\frac{14\pi}{3}) = \frac{\sqrt{3}}{2}$



II  $\cos x = \frac{\sqrt{3}}{2}$

donc  $S = \{ \frac{\pi}{6}; \frac{11\pi}{6} \}$

$\sin x \leq \frac{1}{2}$



$S = [-\pi; \frac{\pi}{6}] \cup [\frac{5\pi}{6}; \pi]$

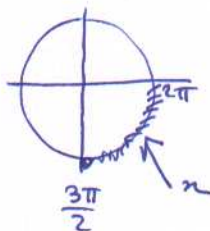
III  $\cos x = \frac{3}{5}$  donc  $\cos^2 x + \sin^2 x = 1$

$\Leftrightarrow \sin^2 x = 1 - \cos^2 x \Leftrightarrow \sin^2 x = 1 - \frac{9}{25} = \frac{16}{25}$

donc  $\sin x = \frac{4}{5}$  ou  $\sin x = -\frac{4}{5}$

mais  $x \in [\frac{3\pi}{2}; 2\pi] \Rightarrow \sin x < 0$

d'où  $\sin x = -\frac{4}{5}$



IV ①  $p(\bar{A}) = 1 - p(A) = 0,4$

② par H  $p(A \cup B) = p(A) + p(B) - p(A \cap B) = 0,4 + 0,6 - 0,3 = 0,7$

③ si  $A \cap B$  impossible alors  $A \cap B = \emptyset \Rightarrow p(A \cap B) = 0 \Rightarrow p(A \cup B) = p(A) + p(B) = 1$   
 $A \cup B$  est alors l'événement certain.

V  $\begin{matrix} 4(4) \\ 3(3) \\ 2(2) \end{matrix} 1(1)$  10 jetons

①  $\Omega = \{1, 2, 3, 4\}$

issues	1	2	3	4
proba	$\frac{1}{10}$	$\frac{1}{5}$	$\frac{3}{10}$	$\frac{2}{5}$

③ a  $A = \{2, 4\} \Rightarrow p(A) = p_2 + p_4 = \frac{3}{5}$

b  $B = \{3, 4\} \rightarrow p(B) = p_3 + p_4 = \frac{7}{10}$

c  $A \cap B = \{4\} \Rightarrow p(A \cap B) = p_4 = \frac{2}{5}$

d  $p(A \cup B) = p(A) + p(B) - p(A \cap B) = \frac{3}{5} + \frac{7}{10} - \frac{2}{5} = \frac{9}{10}$