№ 4097 а) $4\sin^3 x = \cos\left(x - \frac{5\pi}{2}\right)$

$4\sin^3 x = \cos\left(\frac{5\pi}{2} - x\right)$

$4\sin^3 x = \sin x$

$4\sin^3 x - \sin x = 0$

$\sin x\,(4\sin^2 x - 1) = 0$

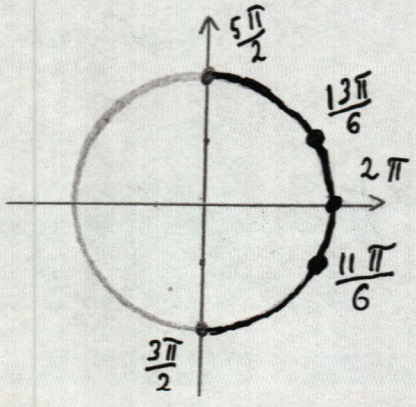
$\left[\begin{array}{l} \sin x = 0 \\ 4\sin^2 x - 1 = 0 \end{array}\right.$

$\left[\begin{array}{l} \sin x = 0 \\ \sin^2 x = \frac{1}{4} \end{array}\right.$

$\left[\begin{array}{l} x = \pi n,\ n \in Z \\ \sin x = \frac{1}{2} \\ \sin x = -\frac{1}{2} \end{array}\right.$

$\left[\begin{array}{l} x = \pi n,\ n \in Z \\ x = \frac{\pi}{6} + 2\pi k,\ k \in Z \\ x = \frac{5\pi}{6} + 2\pi m,\ m \in Z \\ x = -\frac{\pi}{6} + 2\pi L,\ L \in Z \\ x = -\frac{5\pi}{6} + 2\pi t,\ t \in Z \end{array}\right.$

б) с помощью числовой окружности, отберем корни, принадлежащие отрезку $\left[\frac{3\pi}{2}; \frac{5\pi}{2}\right]$



Получим числа $\frac{11\pi}{6}$; 2π; $\frac{13\pi}{6}$

Ответ: а) $x = \pi n,\ n \in Z$
$x = \frac{\pi}{6} + 2\pi k,\ k \in Z$
$x = \frac{5\pi}{6} + 2\pi m,\ m \in Z$
$x = -\frac{\pi}{6} + 2\pi L,\ L \in Z$
$x = -\frac{5\pi}{6} + 2\pi t,\ t \in Z$

б) $\frac{11\pi}{6}$; 2π; $\frac{13\pi}{6}$