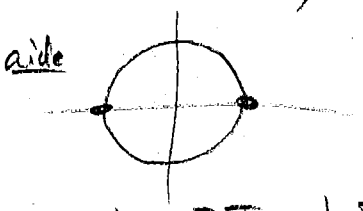
Act 15

1) $f(t) = 30 \sin\left(50\pi t - \frac{7\pi}{3}\right)$

2f : $\sin\left(50\pi t - \frac{7\pi}{3}\right) = 0$

aide



$50\pi t - \frac{7\pi}{3} = k\pi$

$50\pi t = \frac{7\pi}{3} + k\pi$

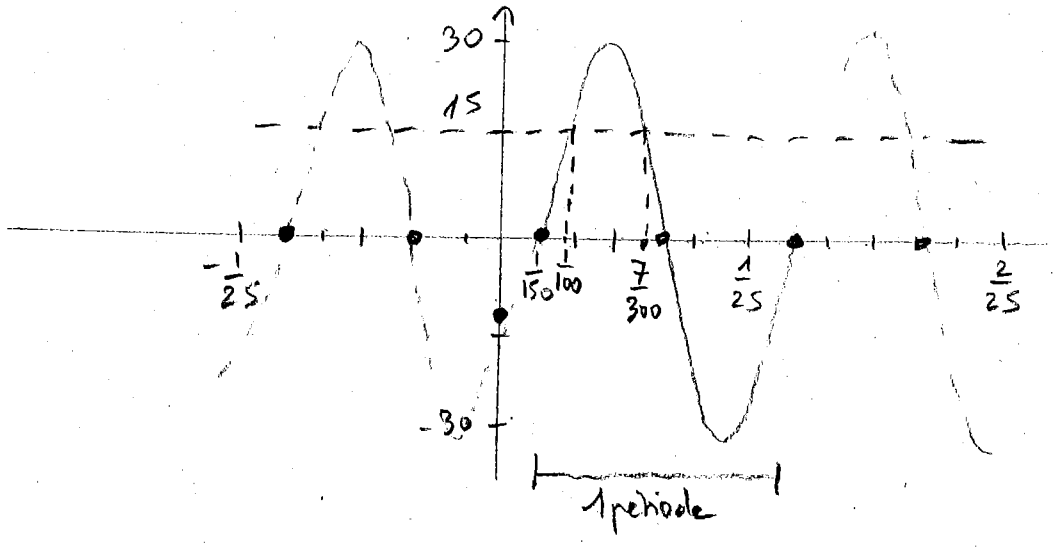
$t = \frac{7}{150} + k \cdot \frac{1}{50} = \frac{7}{150} + k \cdot \frac{3}{150}$

Amplitude : $|a| = 30$

Période : $P = \frac{2\pi}{50\pi} = \frac{1}{25}$

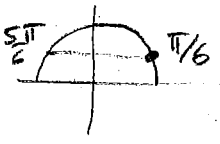
$\sin(0) = 30 \cdot \sin\left(-\frac{7\pi}{3}\right)$

$= 30 \sin\left(-\frac{\pi}{3}\right) = 30 \cdot \left(-\frac{\sqrt{3}}{2}\right) = -15\sqrt{3} \simeq -13$



on veut : $I = 15A \Leftrightarrow 30 \sin\left(50\pi t - \frac{7\pi}{3}\right) = 15$

$\Leftrightarrow \sin\left(50\pi t - \frac{7\pi}{3}\right) = \frac{1}{2}$



$50\pi t - \frac{7\pi}{3} = \frac{\pi}{6} + k2\pi$

$50\pi t = \frac{15\pi}{6} + k2\pi$

$t = \frac{1}{20} + k \cdot \frac{1}{25}$: plus petit : $\frac{1}{20} - \frac{1}{25} = \frac{1}{100}$

$50\pi t - \frac{7\pi}{3} = \frac{5\pi}{6} + k2\pi$

$50\pi t = \frac{19\pi}{6} + k2\pi$

$t = \frac{19}{300} + k \cdot \frac{1}{25}$: plus petit

$\frac{19}{300} - \frac{1}{25} = \frac{7}{300}$