a) $\sin\left(\frac{2t}{3} + \frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}$
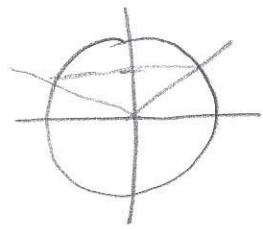
$\frac{2t}{3} + \frac{\pi}{4} = \frac{\pi}{4} + 2k\pi$ ou $\frac{2t}{3} + \frac{\pi}{4} = \frac{3\pi}{4} + 2k\pi$
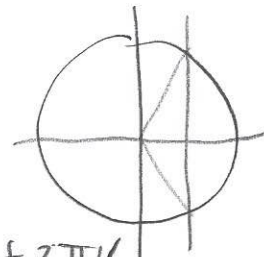
$\frac{2t}{3} = 2k\pi$ $\cong$ $\frac{2t}{3} = \frac{\pi}{2} + 2k\pi$

$t = 3k\pi$ $\cong$ $t = \frac{3\pi}{4} + 3k\pi$

b) $\cos\left(\frac{t}{2} - \frac{\pi}{6}\right) = \frac{1}{2}$

$\frac{t}{2} - \frac{\pi}{6} = \frac{\pi}{3} + 2k\pi$ ou $\frac{t}{2} - \frac{\pi}{6} = -\frac{\pi}{3} + 2\pi k$

$\frac{t}{2} = \frac{\pi}{2} + 2k\pi$ $\frac{t}{2} = -\frac{\pi}{6} + 2k\pi$

$t = \pi + 4\pi k$ $t = -\frac{\pi}{3} + 4k\pi$

c) $\sin(3t) = \sin(2t)$

$3t = 2t + 2k\pi$ ou $3t = \pi - 2t + 2k\pi$

$t = 2k\pi$ $5t = \pi + 2k\pi$

$t = \frac{\pi}{5} + 2k\frac{\pi}{5}$

d) $\cos(2t) = \cos(4t)$

$\quad\quad 2t = 4t + 2k\pi \quad\quad\quad ou \quad\quad 2t = -4t + 2k\pi$

$\quad\quad -2t = 2k\pi \quad\quad\quad\quad\quad\quad\quad 6t = 2k\pi$

$\quad\quad t = k\pi \quad\quad\quad\quad\quad\quad\quad\quad t = k\frac{\pi}{3}$

e) $\quad \sin(2t) = \cos\left(3t + \frac{\pi}{4}\right)$

$\quad \cos\left(\frac{\pi}{2} - 2t\right) = \cos\left(3t + \frac{\pi}{4}\right)$

$\frac{\pi}{2} - 2t = 3t + \frac{\pi}{4} + 2k\pi \quad ou \quad \frac{\pi}{2} - 2t = -\left(3t + \frac{\pi}{4}\right) + 2k\pi$

$\quad -5t = -\frac{\pi}{4} + 2k\pi \quad\quad\quad\quad t = \frac{-3\pi}{4} + 2k\pi$

$\quad t = +\frac{\pi}{20} + k\frac{2\pi}{5}$

f) $\quad -\sin\left(\frac{4t}{3}\right) = \cos\left(\frac{t}{2}\right) \quad\quad ou$

$\quad \sin\left(-\frac{4t}{3}\right) = \cos\left(\frac{t}{2}\right)$

$\quad \cos\left(\frac{\pi}{2} + \frac{4t}{3}\right) = \cos\left(\frac{t}{2}\right) \quad ou \quad \frac{\pi}{2} + \frac{4t}{3} = -\frac{t}{2} + 2k\pi$

$\frac{\pi}{2} + \frac{4t}{3} = \frac{t}{2} + 2k\pi \quad\quad\quad\quad \frac{11t}{6} = -\frac{\pi}{2} + 2k\pi$

$\quad \frac{5t}{6} = -\frac{\pi}{2} + 2k\pi \quad\quad\quad\quad\quad t = \frac{-3\pi}{11} + \frac{12k\pi}{11}$

$\quad t = -\frac{6\pi}{10} + \frac{12k\pi}{5}$

$\quad t = \frac{-3\pi}{5} + k\frac{12\pi}{5}$

h) $\cos(2t) = \sin\left(\frac{\pi}{2} - 4t\right)$

$\cos(2t) = \cos(4t)$

$2t = 4t + 2\kappa\pi$ ou $2t = -4t + 2\kappa\pi$

$2t = 2\kappa\pi$ $6t = 2\kappa\pi$

$t = \pi\kappa$ $t = \kappa\frac{\pi}{3}$