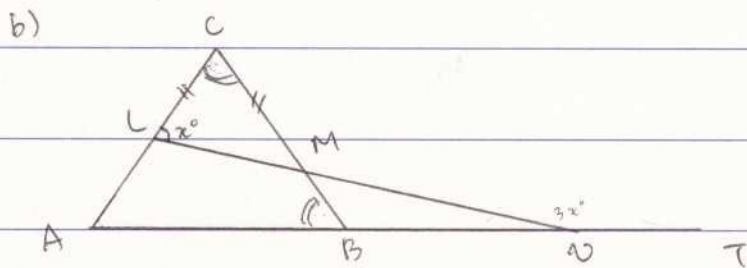a) $3x^2 + 2x + h = 0$

b)

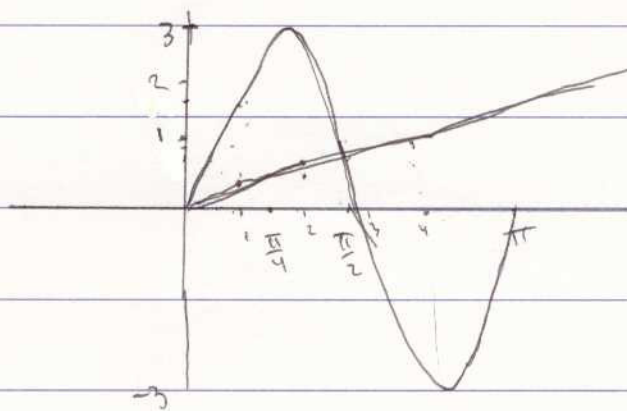i) $\angle LMC = \angle CLM = x°$ (isosceles triangle)

& $\angle LCM = \angle ABC = 180 - 2x°$

ii)

c) i) $y = 3 \sin 2x$ for $-\frac{\pi}{2} \le x \le \frac{\pi}{2}$

ii) $\int_0^{\frac{\pi}{4}} \left(3 \sin 2x - \frac{1}{4} x \right) dx$

$= \left[-\frac{3}{2} \cos 2x - \frac{1}{3} x^{-3} \right]_0^{\frac{\pi}{4}}$

$= \left[\left(-\frac{3}{2} \cos \frac{\pi}{2} - \frac{1}{3} \times \frac{\pi}{4} \right) - \left(-\frac{3}{2} \cos 0 - 0 \right) \right] = \left[\left(-\frac{3}{2} \times \frac{1}{\sqrt{2}} - \frac{\pi}{12} \right) - \left(-\frac{3}{2} \cos 0 - 0 \right) \right]$

$= -\frac{3}{2\sqrt{2}} - \frac{\pi}{12} - \frac{3}{2}$