Start here for Question Number: 7

a) $\ddot{x} = 4\cos 2t$

i) $\frac{4x \sin 2t + 1}{3}$

$= 2\sin 2t + 1$

ii) $t = 2$

iii) $\ddot{x} = 4\cos 2t$

$\dot{x} = 2\sin 2t + t$

$x = \sin 2t$

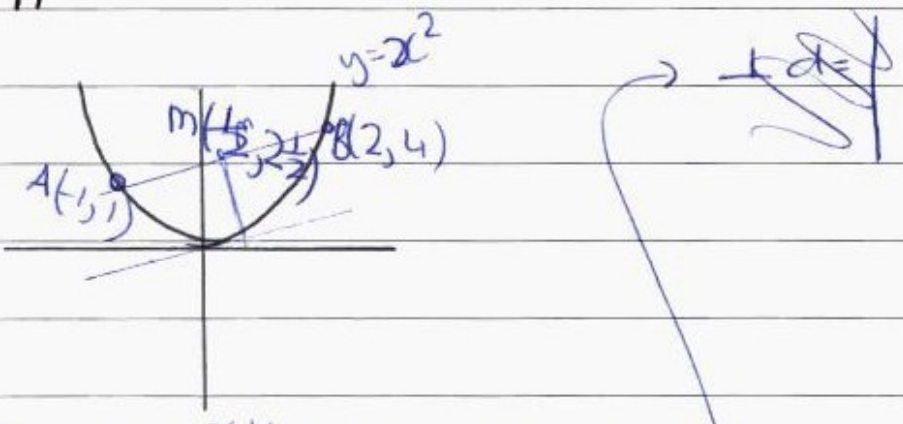
b) i $y = x^2$ $A(-1, 1)$

$y' = 2x$ when $x = -1$

$y = 2(-1)$

$y = -2$

ii



$M = \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}$

$= \frac{-1+2}{2}, \frac{1+4}{2}$

$= \frac{1}{2}, \frac{5}{2}$ $M(\frac{1}{2}, 2\frac{1}{2})$

iii) $y = x^2$ B (2, 4)

$y' = 2x$ when $x = 2$

$y' = 2(2)$

$= 4$

Additional writing space on back page.