Question 7

2010 HSC Mathematics

Band 2/3

Sample 1 Start here for Question Number: 7 a)i $\ddot{x} = 4\cos 2t$. $x = 2 \sin 2 + \frac{1}{2} \cos a x = \frac{1}{2} \sin a x$ " = 4/2 sin 21.+1 x = 2 sin 2+ + 1. ii) 2 sin 21 ==+ = 2 sin 2+ + 1. = 2 sin 0 + 1. = t = 1 (ii) 2 sin 24. + 1. 10 = - 1/g cas ax. = -2/2 LOS X. =- cos 2x. b) m = -1 m = 2x = -2Q- y-1: = -2(x+1) y - 1 = -2x - 2= 4+2x+1 ii) M = 1/2, 5/2. M23. gradient of AB = 3. y-y, = 3(x $y - \frac{1}{2} = 3(x - \frac{5}{2})$ y-1/2=3x. -71/2 =2y-1=6x-7. = 29.6x-2y-6 (D) = 3x - y - 3 = 0= 3(0) - 4-3=0 = -y=3 = y=3 . Me isvertical.

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Sample 1 iii · 1/2, 5/2. M=1. $-\frac{5}{2} = 1(\chi - 2)$ 4 = 2x = 21 o :. BT is tangent to the patabola. Additional writing space on back page.

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