BRONZE 1 Point each	1)Eliminate the parameter: $x=\sqrt{t},\ y=3t^2+2t$	2)Eliminate the Parameter $x=\ln t,\ y=t^2+t$	3)Eliminate the Parameter: $x=3\sin t+2,\ y=4\cos t-1$
BRONZE 1 Point each	4)Find dy/dx: $x=\sqrt{t},\ y=3t^2+2t$	5) Find dy/dx: $x=\ln t,\ y=t^2+t$	6)Find dy/dx: $x=3\sin t+2,\ y=4\cos t-1$
BRONZE 1 Point each	7) Find d^2y/dx^2 $x=\sqrt{t},\ y=3t^2+2t$	8) Find d^2y/dx^2 $x=\ln t,\ y=t^2+t$	9) Find d^2y/dx^2 $x=3\sin t+2,\ y=4\cos t-1$

SILVER 2 Points each	10) Find point(s) of horizontal and vertical tangents $x = t + 5,\ y = t^2 - 4t$	11) Find points of horizontal and vertical tangents $x = t^2 - t + 1,\ y = t^3 - 3t$	12) Find points of horizontal and vertical tangents. $x = 3 + 2\cos t,\ y = -1 + 4\sin t$
SILVER 2 Points each	13) Find the arc length: $x = t^2,\ y = t^3,\ 0 \le t \le 2$	14) Find the arc length $x = e^{2t} + 1,\ y = 3t - 1,\ -2 \le t \le 2$	15) Find the arc length $x = 2\cos^3 t \quad y = 2\sin^3 t$ [0,2pi]
SILVER 2 Points each	16) Given the position vector, find the velocity vector $r(t) = < t\sin t,\ t\cos t >$	17) Given the position vector, find the velocity vector $r(t) = < te^{-t},\ e^{-t} >$	18) Given the position vector, find the velocity vector $r(t) = < t^2 + \sin 2t,\ t^2 - \cos 2t >$

GOLD 4 Points each	The velocity v(t) of a particle moving in the plane is given, along with the position of the particle at time t = 0. Find the position of the particle at time t = 3		
	19) $v(t) = \langle (t+1)^{-1},\ (t+2)^{-2} \rangle \quad (3,-2)$	20) $v(t) = \langle 3t^2 - 2t,\ 1+\cos \pi t \rangle \quad (2,6)$	21) $v(t) = \langle e^t - t,\ e^t + t \rangle \quad (1,1)$
GOLD 4 Points each	22) A particle moves with position vector $\langle \sec \pi t, \tan \pi t \rangle$, for $0 \le t \le \frac{1}{2}$. Find the velocity and speed at t=1/4	23) A particle moves in the plane so that its position at any time t for 0 to 2pi, is given by $\langle \sin t, \cos(2t) \rangle$. For what values of t is the particle at rest?	24)A particle moves in the plane so that its position at any time [0, 2π] is given by $\langle e^t \sin t, e^t \cos t \rangle$ Find the total distance traveled from t = 0 to t = 1