Quiz #2

1. (2.5 points) Find an equation for the tangent line to the curve:

 $x(t) = t^2 - 2t$ and $y(t) = t^2 + 2t$,

when t = 1. Show your work, write your final answer in the space provided below, and express your final answer in the form: $y = m \cdot x + b$.

FINAL ANSWER:

2. (3 points) The graphs shown below give the *x*- and *y*-coordinates of a point as functions of time *t*. Use the axes provided at the bottom of the page to draw an accurate sketch of the path that the particle follows in the *x*-*y* plane.



3. (4.5 points) The diagram shown below shows three circles, C_1 , C_2 and C_3 . The dots show the location of the center of each circle.



The parametric equations for each of the three circles can be written in the form:

$$x(t) = a + k \cdot \cos(t)$$
 and $y(t) = b + k \cdot \sin(t)$,

with $0 \le t \le 2\pi$ where *a*, *b* and *k* are all constants. Determine the values of *a*, *b* and *k* for each circle and record your values in the table given below. If you believe that there is insufficient information to determine the value of a particular constant for a particular circle, write "INS" in the corresponding part of the table.

	Circle C ₁	Circle C ₂	Circle C ₃
a			
b			
k			