Read each problem **very carefully** before starting to solve it and do only what is asked. Each problem is worth around 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. [4 points] Consider the pair of parametric equations $\left\{ \begin{array}{ccc} x(t) & = & t^2 \\ y(t) & = & t-1 \end{array} \right\}$.

    (a) Eliminate the parameter, and write the parametric equations as a Cartesian equation.

    (b) Use a small table of values to sketch the graph of this set of parametric equations.

2. [6 points] Let $\mathbf{v}$ be the vector with initial point $P = (-5, 4)$ and terminal point $Q = (-6, 6)$ and $\mathbf{u}$ be the vector with initial point $R = (7, -3)$ and terminal point $S = (12, -2)$.

(a) Compute the position vector of $\mathbf{w} = 2\mathbf{v} + \mathbf{u}$.

(b) Find the length and the direction of $\mathbf{w}$.

(c) Find the unit vector in the direction of $\mathbf{u}$.