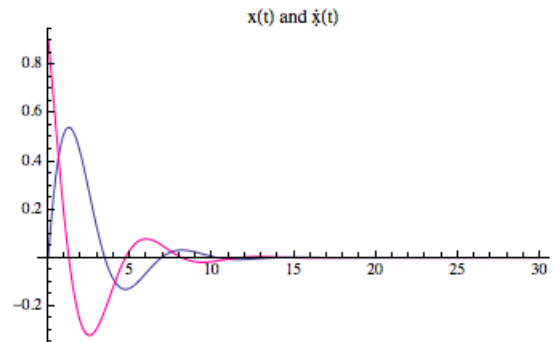
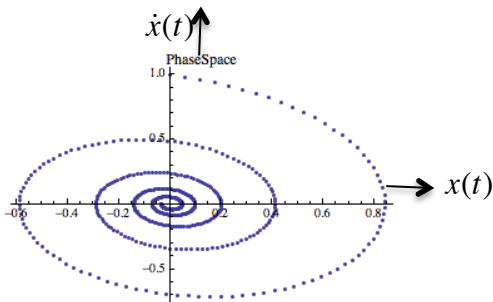
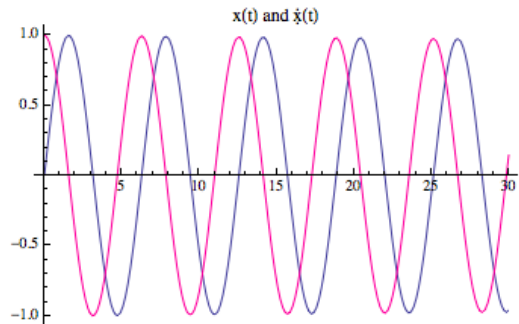
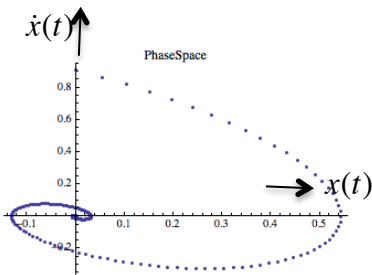
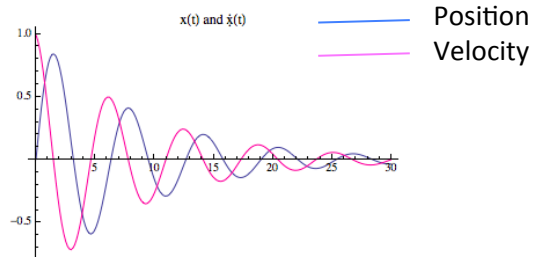
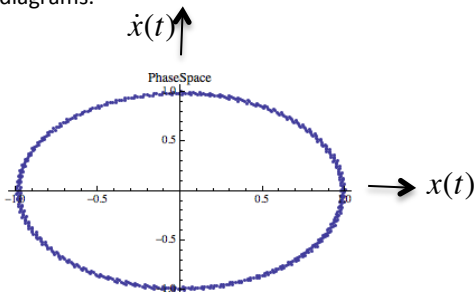


**Quiz # 1: PHYS 310 Fall 2013 September 11<sup>th</sup> 2013 – 15 points**

**Q-1:** We have discussed in class that, phase diagram of a damped harmonic oscillator. Depending on the damping parameter, the phase diagram changes. Following picture, we have given a three phase diagrams and three plot to show how the position and the velocity of an oscillating object change with time. Match the left column and right column of the diagrams.



**Q-2** What does it mean by the resonance of a force harmonic oscillator?

**Q-3** What is a quality factor of a forced harmonic oscillator? Not only the Mathematical definition, can you explain the physical significance of quality factor?