PHYS 1301 IDEAS OF MODERN PHYSICS HOMEWORK **E**

Name_____

Print out and use this as a cover sheet for your hand-written answers.

1. Explain why Special Relativity is "special" and General Relativity (via the Equivalence Principle) must incorporate a model of gravity.
   [4.1 Equivalence Principle]

2. You are in an elevator when the cable snaps. At the instant the cable snapped, you gently released a ball you were holding. As the elevator falls, describe and explain
   (a) what you would feel
   (b) what you would see happening to the ball.
   [4.1 Equivalence Principle]

3. Describe two real (not thought) experiments or observations that have critically tested <u>new</u> gravity effects predicted by Einstein's ideas about relativity. Note: free-fall acceleration of masses is not one of them because this was already explained (with a different idea) before Einstein.
   [4.2 Time Dilation & Light Bending, Chapter 1 Scientific Discovery]