Neutron stars and black holes.

1. A black hole is best described as
   a) A star that sucks all matter onto itself
   b) A window into another universe
   c) A object that is smaller than its Schwarzschild radius
   d) The final result of all stellar evolution

2. Which of the following can escape from inside the event horizon of a black hole?
   a) Photons
   b) Anti-matter
   c) Radio emission
   d) Xrays
   e) None of the above

3. What is the difference between Doppler redshift and gravitational redshift?

4. The equivalence principle tells us
   a) That mass is equivalent to energy: $E = mc^2$
   b) The faster an object moves, the heavier it becomes
   c) Nothing can travel faster than the speed of light
   d) It is impossible to tell the difference between the force of gravity and acceleration

5. What size would the moon have to shrink to in order to form a black hole (i.e. what is its Schwarzschild radius)? The mass of the moon is 7.4 $\times 10^{22}$ kg and G= $6.67 \times 10^{-11} m^3/s^2 kg$