

Due *in class* Thursday February 14th

Gravity and Harmonic Oscillator:

1. *KEK* Problem 3.15.

Center of Mass:

2. *KEK* Problem 4.1.
3. *KEK* Problem 4.2.

Momentum Conservation:

4. *KEK* Problem 4.5.
5. *KEK* Problem 4.7. *Note that there are two cases to be considered: (a) when m_1 is in contact with the wall, and (b) when m_1 loses contact with the wall.*

Rocket Motion:

6. A rocket that starts with mass M ejects exhaust at a given speed u . What is the mass of the rocket (including unused fuel) when its momentum is maximum?