ISP 209
Equations for Exam 2

- Energy

  $K = \frac{1}{2} m v^2$

  $U = mgh$ (gravity; $g = 9.81$ m/s^2)

  $U = \frac{1}{2} k x^2$ (spring; k = Hooke's constant)

  Power = Energy / Time

- Static Electricity

  $$F = \frac{KQ_1Q_2}{r^2}$$ (Coulomb's law; $K = 8.99$ x 10^9 Nm^2/C^2)

  The electric field outside a charged sphere: $\mathbf{E} = \dfrac{KQ}{r^2} \, \hat{\mathbf{r}}$

  $Q = CV$ and $U = \frac{1}{2} Q V$ (capacitor; C = capacitance)

- Electric Current

  $$I = \frac{\Delta Q}{\Delta t}$$

  $V = I R$ (Ohm's law; R = resistance)

  $P = I V = I^2 R$ (Joule's law)