This is a list of all the formulae and equations you've seen so far in this class, arranged in no particular order. Arranging them will be your job! It's also up to you to keep adding new formulae that appear in lecture/section/problem sets to this list.

Kinetic Energy $=\frac{1}{2}mv^2$

On the surface of the Earth:

$$E_{\rm grav} = m\vec{g}h$$

In general:

$$E \operatorname{grav} = \frac{GMm}{r}$$

Thermal Energy
$$=\frac{3}{2}k_BT$$

Density (ρ) :

$$\rho = \frac{M}{\text{volume}}$$
$$f = ea$$
$$\vec{a}_{\text{circ}} = \frac{v^2}{r}$$

Rest-mass energy (Einstein's formula):

$$E = mc^{2}$$

$$\tan \theta = \frac{oppone}{adjacent}$$

$$\vec{a} = \frac{\Delta \vec{v}}{\Delta t}$$

$$\operatorname{speed} = v = \frac{\text{distance travelled}}{\text{time}}$$

$$\operatorname{recos}(\cos \theta) = \theta$$

$$\operatorname{arccan}(\cos \theta) = \theta$$

$$\operatorname{arctan}(\cos \theta) = \theta$$

$$\operatorname{recos}(\cos \theta) = \theta$$

$$\operatorname{reco$$

flux = $\frac{\text{rate}}{\text{peri}_{\perp}}$

 $\left(\frac{P}{2\pi}\right)^2 = \frac{a^3}{GM}$

nouns collected per time = flux \cdot collecting area

rate =
$$\frac{\text{nouns}}{\text{time}}$$

 $c = \lambda \nu$

speed of wave $= \lambda \nu$

Energy of a single photon $= h\nu$

$$\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\tan \theta = \frac{\text{opposite}}{\text{adjacent}} = \frac{\sin \theta}{\cos \theta}$$

 σT^4

n K