Formulas You Need to Know
AP Environmental Science

Formula	What is the formula?	Describe in your own words how this formula is used	Practice Problem
IPAT			(sorry, no practice problem) If you ↑ P, what happens to I? If you ↑ A, what happens to I? If you ↑ T, what happens to I?
% change			A car gets 32 mpg. After a tune-up, the car gets 40 mpg. Calculate the percent change in gas mileage.
Growth rate (r)			A city of 100,000 people has 2,000 births, 500 deaths, 200 emigrants, and 100 immigrants over a 1-year period. What is its growth rate?
Doubling time (t_d)			A population has a doubling time of 0.2% per year. How long will it take for its population to double?
Net primary productivity (NPP)			The NPP of an ecosystem is 1kg $C/m^2/yr$, and the energy needed by the producers for their own respiration is 1.5 kg $C/m^2/yr$. What is the GPP?
Metric conversions		G = giga $= 10^6$ M = = k = = base = meter/gram/liter = 1 c = = m = =	