Formulas Required for the FCAT

Density (D)	$= \frac{\text{mass (g)}}{\text{Volume (cm}^3\text{)}}$	$D = \frac{m}{V}$
Average Speed ($\bar{v}$)	$= \frac{\text{distance}}{\text{time}}$	$\bar{v} = \frac{d}{t}$
Work (W)	= Force (N) x distance (m)	W = Fd
Percent efficiency (e)	$= \frac{\text{Work out (J)}}{\text{Work in (J)}}$ x 100	$\%\ e = \frac{W_{out}}{W_{in}}$ x 100
Acceleration ($\bar{a}$)	$= \frac{\text{change in velocity (m/s)}}{\text{time taken for this change (s)}}$	$\bar{a} = \frac{v_f - v_i}{t_f - t_i}$
Force in newtons (F)	= mass (kg) x acceleration (m/s^2)	F = ma
Momentum (p)	= mass (kg) x velocity (m/s)	p = mv
Wavelength (λ)	$= \frac{\text{velocity (m/s)}}{\text{frequency (Hz)}}$	$\lambda = \frac{v}{f}$
Frequency in hertz (f)	$= \frac{\text{number of events (waves)}}{\text{time (s)}}$	$f = \frac{n \text{ of events}}{t}$

Units of Measure Often Used in Formulas

Mass	*Length*	*Time*	*Force*	*Energy*	*Frequency*
g = gram kg = kilogram	cm = centimeter m = meter	s = second	N = newton	J = joule (newton-meter)	Hz = hertz