formulas, physics:

Friction changes the experimental results significantly.

Machines must be used in the experiments to reduce human error.

Video cameras must be used in the experiments to reduce human error.

Averaging many experiments reduces random error.

Relative error must be about the same for all measurements.

Ft = mv (mechanics)

**M = D×F** (moment of force, mechanics)

W = FD (work = Force Distance (mechanics))

P = $\frac{W}{t}=\frac{dW}{dt}$ = Fv (power, work, force, velocity, mechanics)

$qV= \frac{mv^{2}}{2}$ (charge, Voltage, mass, velocity, electricity, mechanics)

λD = ax Young double-slit experiment (waves)

d sinA = nλ diffraction grating (waves)

$y=A\sin(\left(ω\left(t - \frac{x}{v}\right)\right)),$ ω = 2πf, $f= \frac{1}{T} $(waves)

$y\_{1}+ y\_{2}=2A\cos(\left(\frac{ωx}{v}\right))\sin(\left(ωt\right))$ standing waves.

$R=\frac{ρL}{A}$ (resistance, resistivity (electricity))

F = Eq (field and force (electricity))

p = gh (pressure, fluid mechanics)

$F=CρAv^{2}$ (resistance force (fluid mechanics))

$c=\frac{m\_{1}x\_{1}+m\_{2}x\_{2}}{m\_{1}+m\_{2}}$ (center of mass (solid mechanics))

Center of gravity is the center of parallel forces, moment = 0.

F = ma (Newton Second Law (material point, solid mechanics))

σ = Eε (Hooks Law (deformed mechanics))

$T=2π\sqrt{\frac{m}{k}}$ (spring harmonic oscillator period (solid mechanics))

$T=2π\sqrt{\frac{L}{g}}$ (pendulum harmonic oscillator period (solid mechanics))

$T=2π\sqrt{\frac{J}{c}}$ (rotational harmonic oscillator period (solid mechanics))

$T=2π\sqrt{LC}$ (LC circuit harmonic oscillator period (electricity))