$\frac{CFM_n}{CFM_o} = \frac{RPM_n}{RPM_o}$ o = old, n = new CFM and RPM are interchangeable. $CFM_n = CFM_o \times \frac{RPM_n}{RPM_o}$ $RPM_n = RPM_o \times \frac{CFM_n}{CFM_o}$

$\left(\frac{CFM_n}{CFM_o}\right)^2 = \frac{Sp_n}{Sp_o}$ OR $\frac{CFM_n}{CFM_o} = \sqrt{\frac{Sp_n}{Sp_o}}$ $CFM_n = CFM_o \times \sqrt{\frac{Sp_n}{Sp_o}}$ $Sp_n = Sp_o \times \left(\frac{CFM_n}{CFM_o}\right)^2$

$\left(\frac{CFM_n}{CFM_o}\right)^3 = \frac{BHP_n}{BHP_o}$ OR $\frac{CFM_n}{CFM_o} = \sqrt[3]{\frac{BHP_n}{BHP_o}}$ $CFM_n = CFM_o \times \sqrt[3]{\frac{BHP_n}{BHP_o}}$ $BHP_n = BHP_o \times \left(\frac{CFM_n}{CFM_o}\right)^3$

Hydronics: $\Delta P = Sp$, CFM = GPM, RPM = GPM

$MAT = (OAT \times \%OA) + (RAT \times \%RA)$

O = Outside
T = Temperature
R = Return
M = Mixed
A = Air

Btuh hydronic (H_2O only) = 500 × GPM × ΔT
Btuh sensible (at sea level) = 1.08 × CFM × ΔT
Btuh latent (at sea level) = 0.68 × CFM × ΔGrains
Btuh total (at sea level) = 4.5 × CFM × ΔEnthalpy

$CFM = \frac{AC/Hr \times Volume}{60\ min}$ $V = 4005 \times \sqrt{Vp}$ $Vp = \left(\frac{V}{4005}\right)^2$

Pressure (PSI) = 0.433 × Head (feet of water)

1 IWC = 0.0360 PSI
1 PSI = 27.72 IWC

Pressure 1 × Volume 1 = Pressure 2 × Volume 2

$Rectangular\ Duct\ Area\ (ft^2) = \frac{Length \times Width}{144}$

$Area = \pi \times radius^2$

$Round\ Duct\ Area\ (ft^2) = \frac{\pi \times diameter^2}{576}$

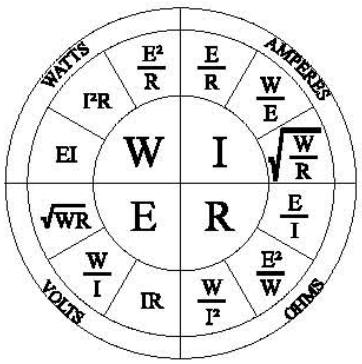
$A^2 + B^2 = C^2$

$Diameter = \frac{Circumference}{\pi}$

$mfd = \frac{(2650 \times I)}{E}$

$FR = \frac{ASP \times 100}{TEL}$ (IWC/100)

CFM = Velocity (fpm) × Duct Area (ft^2)



$CFM = \frac{(Watts \times 3.413)}{(\Delta T \times 1.08)}$

$C_T\ (Series) = \frac{1}{\frac{1}{C_1} + \frac{1}{C_2} + \ldots + \frac{1}{C_N}}$

$C_T\ (Parallel) = C_1 + C_2 + \ldots + C_N$