Common Pool Calculations

Quantity Conversions
Ounces to Pounds: OZ/16 = LBS
Ounces to Gallons: OZ/128 = GALS
Cubic Feet to Gallons: FT^3 x 7.48 = GALS
1 Tablespoon = 3 teaspoons
1 Cup = 16 Tablespoons
1 Pint = 2 Cups
1 Quart = 2 Cups
1 Gallon = 4 Quarts
1 Cup of water weighs 8 Ounces

Distance Conversions
Yards to Feet: YDS/3 = FT
Meters to Feet: M x 3.28 = FT

Surface Area
Rectangle: L x W = FT^2
Circle: π x r^2 =FT^2

Volume
Rectangle: L x W x H = FT^3
Circle: π x r^3 = FT^3

Turnover Rate
Pool Volume/Flow Rate/60 = Hours

Flow Rate
Pool Volume/Turnover Rate (Hours)/60 = Gallons per Minute (gpm)

Filter Surface Area
Flow Rate/Filtering Rate = FT^2 of filter material

Average Depth
(Shallow Depth + Deep Depth)/2 = Average Depth

Heater Sizing
(Beginning Pool Temp - Desired Pool Temp) x 8.33
1 BTU will raise 1 FT^3 of water 1° F
Volume of Pool x 8.53 x Temp. change = BTU Needed
BTU Needed/Output Heater = Time Needed

Bather Load
Surface Area/Capacity
Spas: 1 bather per 10 FT^2
Pools: 10 FT^2 per bather Non Swimmer (3 feet to 5 feet)
24 FT^2 per bather Swimmer (5+ feet
300 FT^2 diving area (9 Swimmers)

Filter Capacity
Filter Area x Filter Media Rate x Required Turnover Time = Filter Capacity

Water Weight
1 Gallon of water weighs 8.33 lbs.
1 FT^3 of water weighs 62.4 lbs.

Filter Pressure

	Influent	Effluent
New	18	13
Dirty	25	10