Bottled Water Formula Sheet

Conversions

➡️ *multiply*   ⬅️ *divide*

1 psi	=	2.31 ft of head
1 ft^3 of water	=	7.48 gallons
1 ft^3 of water	=	62.4 lbs
1 gallon	=	8.34 lbs
1 ppm	=	1 mg/L
1 ft^3/sec	=	448.8 gpm
1 MGD	=	1.55 ft^3/sec
1 MGD	=	694.5 gpm
1 HP	=	0.746 kilowatt
1 mile	=	5280 ft
1 day	=	1440 minutes
1 lb	=	453.6 g (ml water)
1 yd^3	=	27 ft^3
1% solution	=	10,000 ppm

Flow and Velocity

"Q" = FLOW, ft^3/sec

"V" = VELOCITY, f/s

"A" = AREA, ft^2

$$Q = A \times V$$

$$V = Q \div A$$

$$A = Q \div V$$

Other Formulas

$$Specific\ Capacity = \frac{flow,\ gpm}{drawdown,\ ft}$$

$Drawdown = Pumping\ level, ft\ -\ Static\ water\ level, ft$

$$\%\ water\ loss = \frac{Water\ lost,\ gallons}{Water\ treated,\ gallons} \times 100$$

Area ft^2

Rectangle	$length\ ft \times width\ ft$
Circle	$0.785 \times D\ ft \times D\ ft$

Volume ft^3

Cube	$Length\ ft \times width\ ft \times height\ ft$
Cylinder	$0.785 \times D\ ft \times D\ ft \times length\ ft$

$$Diameter\ (D) = 2 \times Radius$$

$$Circumference = 3.14 \times D$$

$$Perimeter = sum\ of\ the\ sides$$

Dosage = Demand + Residual
Residual = Dosage – Demand
Demand = Dosage - Residual

Lbs (of chemical)

Flow or Volume *(MGD)* — **8.34** — Dose or Concentration *(ppm or mg/L)*

$$lbs\ of\ chemical = \frac{ppm \times 8.34 \times MGD}{\%\ Purity}$$

$$Dose\ (ppm) = \frac{lbs\ of\ chemical \times \%\ Purity}{MGD \times 8.34}$$

Ignore % purity if not given in formula.

$$gallons = \frac{ppm \times 8.34 \times MGD}{\%\ purity \times SG \times 8.34}$$

Use this formula if gallons are asked for in a math problem.
Substitute weight of solution for SG x 8.34 if given.

$$Specific\ Gravity = \frac{wt\ of\ a\ liquid}{equivalent\ wt\ of\ water}$$

$$Strength\ of\ Solution = \frac{wt\ of\ chemical}{wt\ of\ solution} \times 100$$