FREE PRINTABLE SHEET

Operator Math Formula Sheet

The formulas operators use most on the job and on certification exams, on one page. Print it or save it as a PDF. On exam day, use the formula sheet your exam gives you.

Detention Time

Find detention time

$$time = volume \div flow$$

Find required volume

$$volume = flow \times time$$

Pounds Loading

Find pounds per day

$$lb/day = MGD \times mg/L \times 8.34$$

Chemical Feed Rate

Find daily product feed

$$lb/day = MGD \times mg/L \times 8.34 \div purity\ decimal$$

Percent Removal

Find percent removal

$$\%\ removal = (influent - effluent) \div influent \times 100$$

Find effluent

$$effluent = influent \times (1 - removal\ decimal)$$

Channel Flow Rate

Find velocity

$$velocity = flow \div area$$

Find cross-sectional area

$$area = flow \div velocity$$

Find channel flow

$$flow = area \times velocity$$

Tank Area

Rectangle area

$$Area = length \times width$$

Circle area from diameter

$$Area = 0.785 \times diameter^2$$

Circle area from radius

$$Area = \pi \times radius^2$$

MGD to GPD Conversion

Convert MGD to gpd

$$gpd = MGD \times 1{,}000{,}000$$

Common Conversions

Water weight

$$1\ gal = 8.34\ lb$$

Cubic feet to gallons

$$1\ ft^3 = 7.48\ gal$$

Million gallons

$$1\ MGD = 1{,}000{,}000\ gpd$$

MGD to gallons per minute

$$1\ MGD \approx 694\ gpm$$

Cubic feet per second

$$1\ ft^3/sec \approx 0.646\ MGD$$

One day

$$1\ day = 24\ hr = 1{,}440\ min$$

Circle shortcut

$$0.785 = \pi \div 4$$

Percent to mg/L

$$1\% = 10{,}000\ mg/L$$