NCICLB Exam Formula & Conversion Sheet v24.12.1

Formula #1

$$\text{Precipitation Rate} = \frac{96.3 \times \text{gpm}}{\text{Area \{sq. ft.\}}}$$

Formula #2

$$\text{Precipitation Rate} = \frac{231 \times \text{gph}}{\text{emitter spacing} \times \text{tubing spacing \{sq. in.\}}}$$

Formula #3

$$\text{Precipitation Rate} = \frac{1.604 \times \text{gph}}{\text{Area \{sq. ft.\}}}$$

Formula #4

$$\text{Daily Water Need} = \text{Daily } ET_O \times K_C$$

Formula #5

$$\text{Run Time} = \frac{\text{Daily Water Need}}{\text{Precipitation Rate}} \times 60$$

Formula #6

$$\text{Irrigation Frequency} = \frac{\text{Available Water} \times \text{Root Zone} \times \text{MAD}}{ET_O \times K_C}$$

Formula #7

$$\text{Max. Syst. Capacity} = \frac{0.0104 \times ET_O \times \text{Area} \times K_C}{\text{DU} \times \text{Hrs.}}$$

Formula #8

$$\text{Max. Area of Coverage} = \frac{\text{gpm} \times \text{DU} \times \text{hours}}{0.0104 \times ET_O \times K_C}$$

Formula #9

$$\text{Selling Price} = \frac{\text{Costs}}{1 - \text{profit \%} \text{ \{decimal\}}}$$

Formula #10

$$\text{Gross Profit \$} = \text{Sales \$} - \text{Direct Job Costs \$}$$

Formula #11

$$\text{Gross Profit \%} = \frac{\text{Sales Price \$} - \text{Cost \$}}{\text{Sales Price \$}}$$

Formula #12

$$\text{Net Profit \$} = \text{Gross Profit \$} - \text{G\&A Cost \$}$$

Formula #13

$$\text{Net Profit \%} = \frac{\text{Gross Profit \$} - \text{G\&A Cost \$}}{\text{Sales Price \$}}$$

Formula #14

$$\text{psi} = \text{feet of head} \times 0.433$$

Formula #15

$$\text{feet of head} = \frac{\text{psi}}{\text{feet of head}}$$

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Formula #16

Estimated Line Source Zone GPH Base on Irrigated Area

$$= \frac{\text{Irrigated Area \{sq. ft.\} x 144 inches}}{\text{Emitter Spacing \{in.\} x Tubing Spacing \{in.\}}} \text{ x Emitter gph} \div 60$$

Formula #17

Estimated Line Source Zone GPH Based on Total Length

$$= \frac{\text{Total Tubing Length \{ft.\} x 144 x emitter gph}}{\text{Emitter Spacing \{in.\}}} \div 60$$

Formula #18

Total Feet of Line Source Tubing within Area

$$= \frac{\text{Irrigated Area \{sq. ft.\} x 12 inches}}{\text{Minimum Row Spacing \{in.\}}}$$

Formula #19

Maximum Feet of Line Source Tubing Based on Flow

$$= \frac{\text{Max Zone gpm Available x 60}}{\text{Emitter gph}} \text{ x } \frac{\text{Emitter Spacing \{in.\}}}{\text{12 inches}}$$

Formula #20

Number of Line Source Emitters within a Zone

$$= \frac{\text{Total Tubing Length \{ft.\} x 12 inches}}{\text{Emitter Spacing \{in.\}}}$$

Formula #21

$$\text{Point Source Run Time \{minutes/week\}} = \frac{\text{Water Need of Plant \{gal./wk.\}}}{\text{Total gph per Plant}} \text{ x 60}$$

Conversions

Gallons per acre-inch = 27,154

Gallons per square foot-inch = 0.6234

Gallons per cubic foot = 7.48