calculation of Darcy friction factor from experimental values:

general formula for Darcy friction factor:

$$f = \frac{D \Delta P}{2 \rho V^2 L}$$

$D = 1 \text{ inch} \cdot \frac{0.0254 \text{ m}}{1 \text{ inch}} = 0.0254 \text{ m}$ (from Table 2)

$\Delta P = 11 \text{ psi} \cdot \frac{6894.76 \text{ Pa}}{1 \text{ psi}} = 75842.36 \text{ Pa}$ (from experimental data)

$V = 0.25 \text{ m/s}$ (see sample calculation 3 for full calculation)

$L = 39.625 \text{ in} \cdot \frac{0.0254 \text{ m}}{1 \text{ in}} = 1.006475 \text{ m}$ (from Figure 3)

$\rho = 1000 \text{ kg/m}^3$

$$f = \frac{0.0254 \text{ m} \cdot 75842.36 \text{ Pa}}{\left(0.25 \frac{\text{m}}{\text{s}}\right)^2 \cdot 2 \cdot 1000 \frac{\text{kg}}{\text{m}^3} \cdot 1.01 \text{ m}} = \boxed{15.433}$$