

Figure 9a. Solid Door Knob Geometry showing Sink and Sources

$$\begin{aligned}
 f(x,y,z) = & \frac{-500}{[(x - 5)^2 + (y - 0)^2 + (z + 2)^2]^{1/2}} \\
 & + \frac{10000}{[(x - 0)^2 + (y + 0.1)^2 + (z - 5)^2]^{1/2}} \\
 & + \frac{100}{[(x - 0)^2 + (y - 5)^2 + (z - 6)^2]^{1/2}}
 \end{aligned}$$

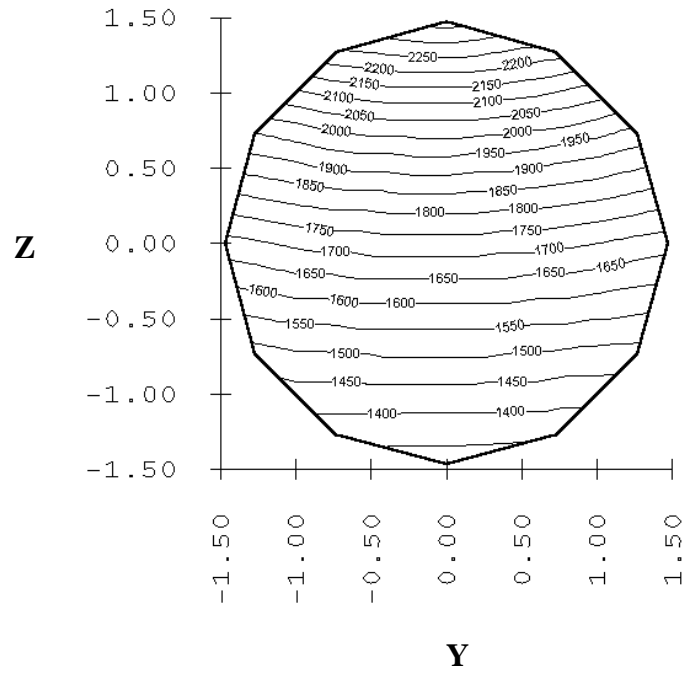


Figure 9b. Exact Solution (slice at  $x = 2.0$ )

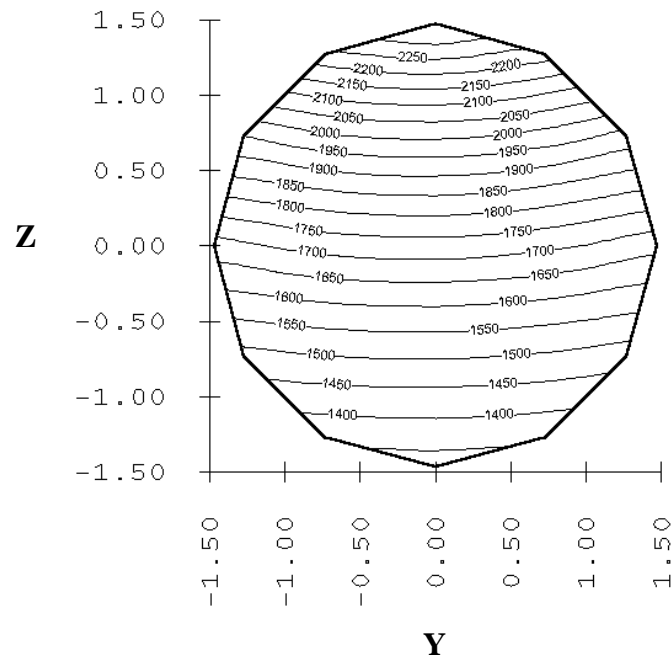


Figure 9c. Approximation Solution (slice at  $x = 2.0$ )

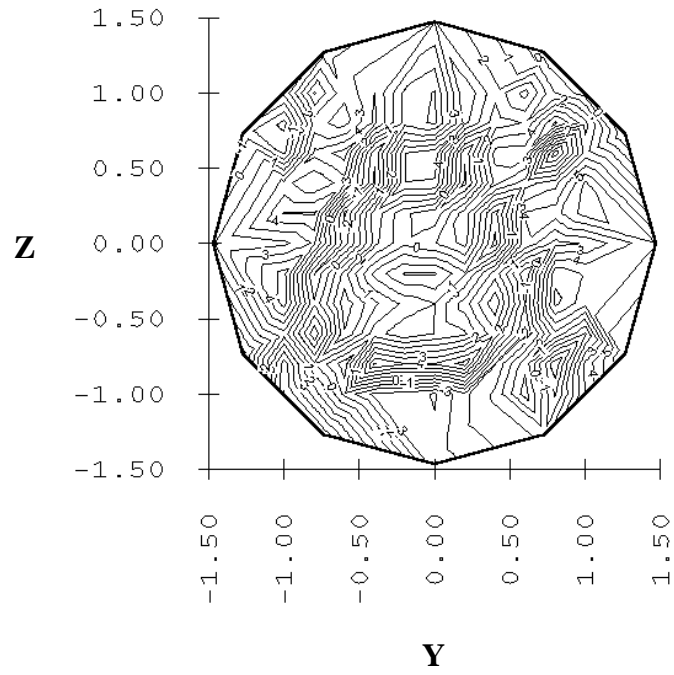


Figure 9d. **Approximation Error (slice at  $x = 2.0$ )**

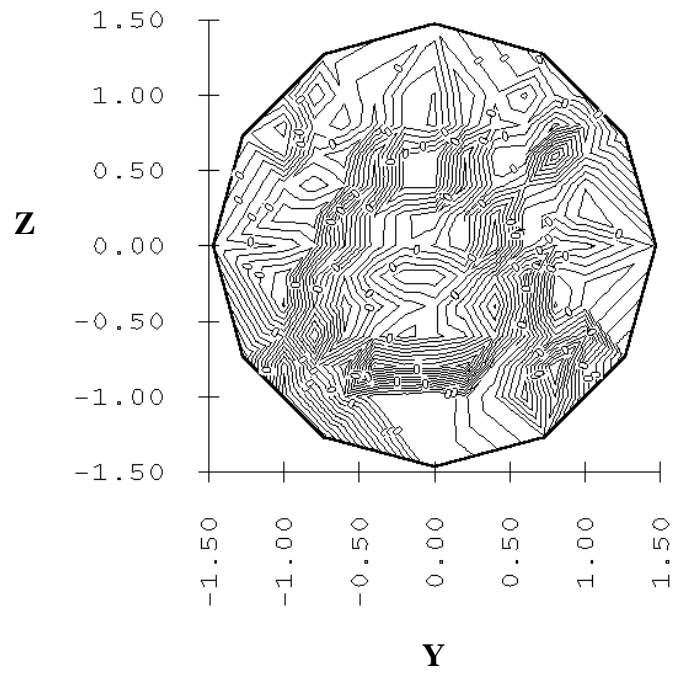


Figure 9e. **Relative Error (slice at  $x = 2.0$ )**

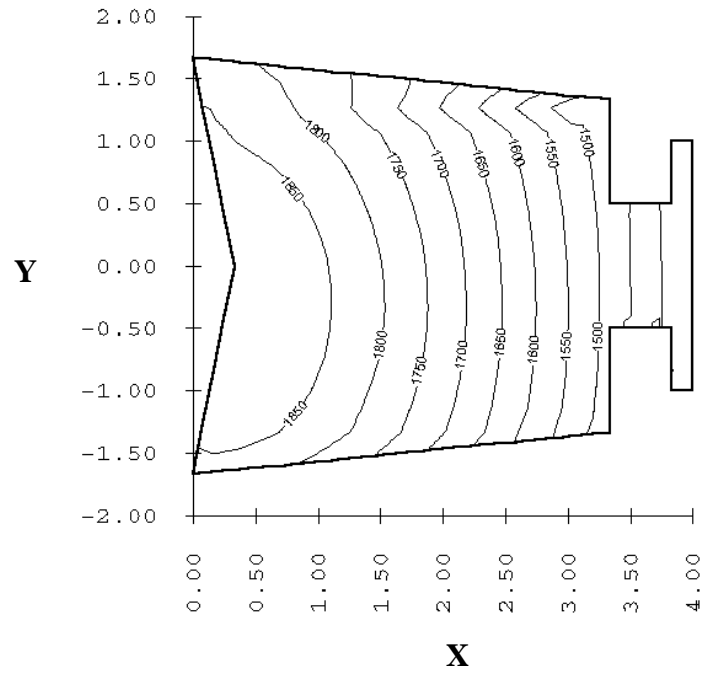


Figure 9f. Exact Solution (slice at  $z = 0$ .)

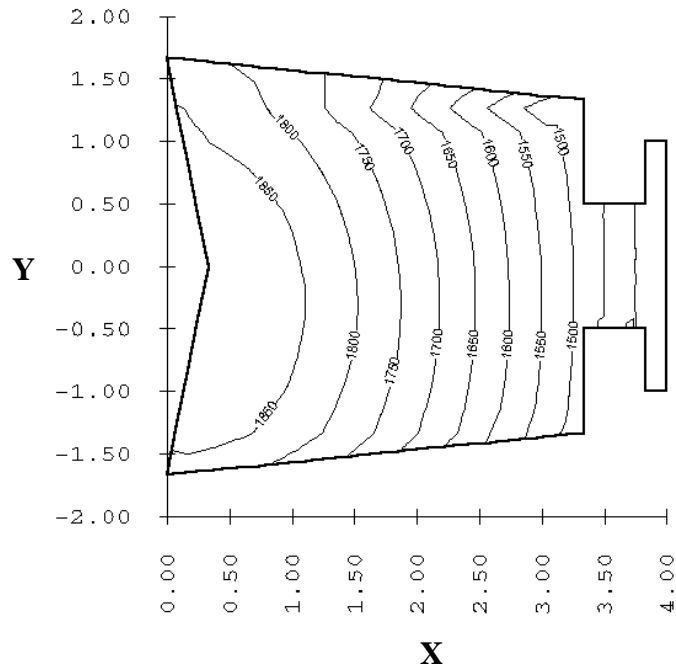


Figure 9g. Approximation Solution (slice at  $z = 0$ .)

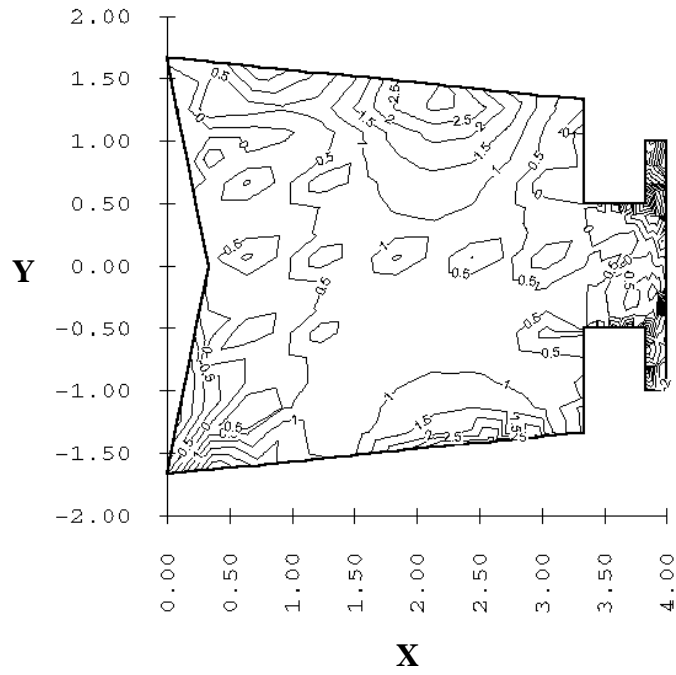


Figure 9h. Approximation Error (slice at  $z = 0$ .)

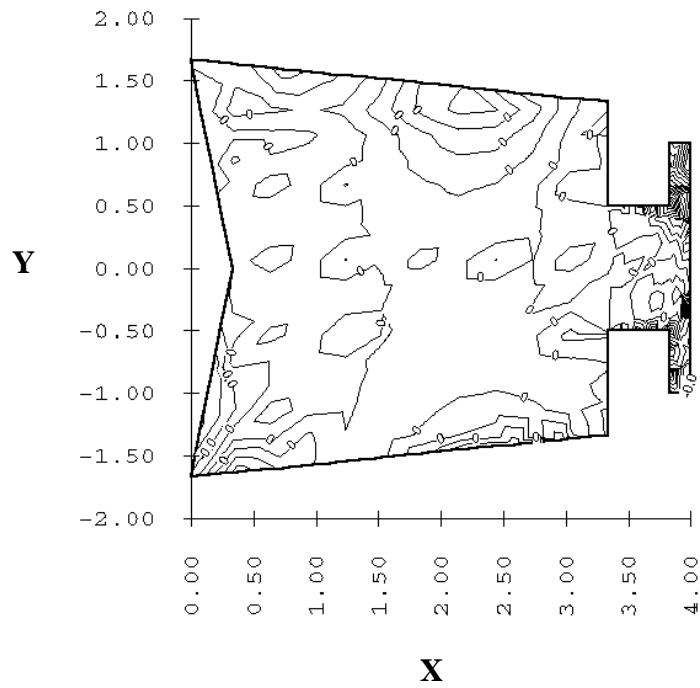


Figure 9i. Relative Error (suce at  $z = 0$ .)

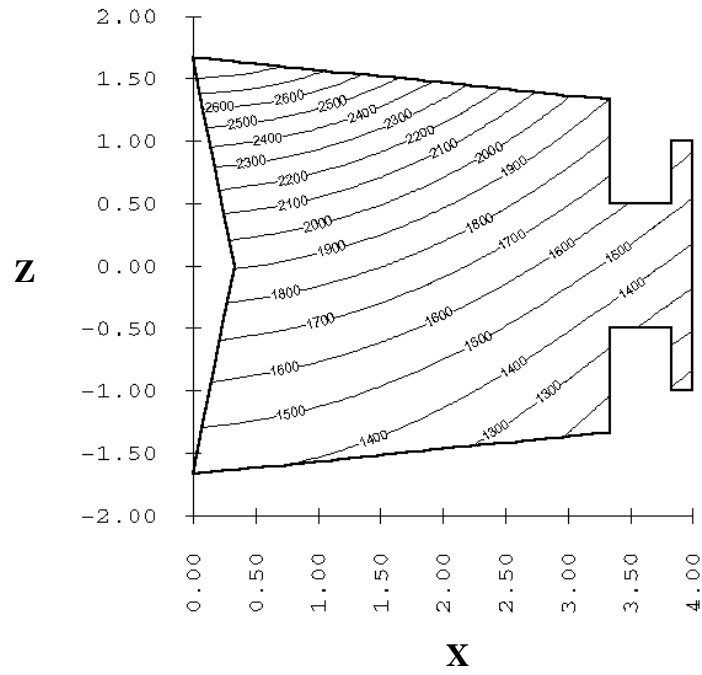


Figure 9j. Exact Solution (slice at  $y = 0$ .)

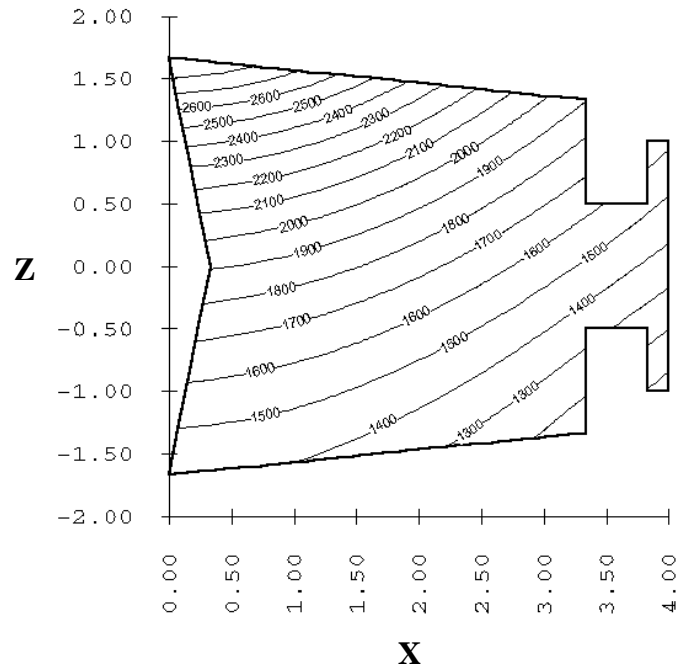


Figure 9k. Approximation Solution (slice at  $y = 0$ .)

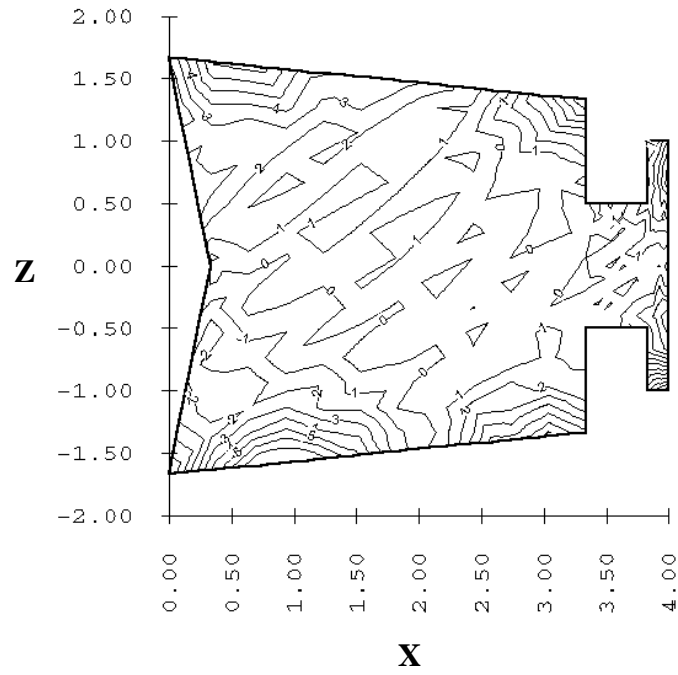


Figure 9l. **Approximation Error (slice at  $y = 0$ .)**

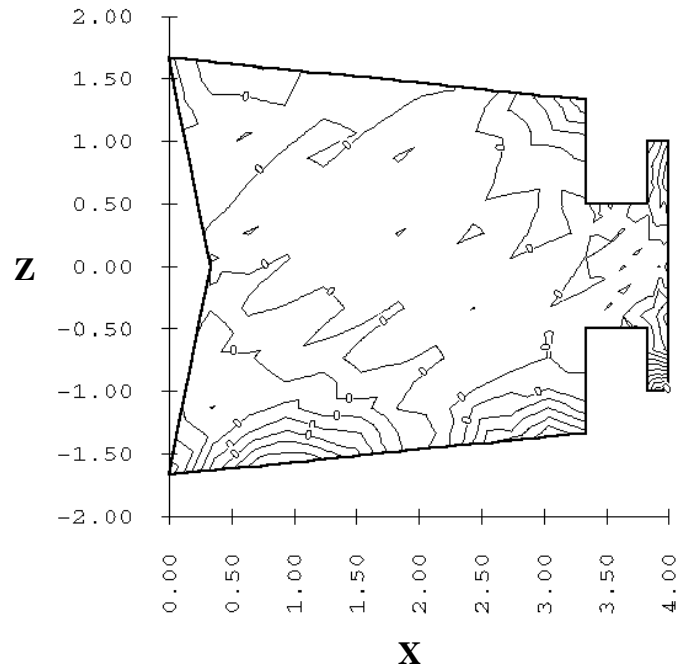


Figure 9m. **Relative Error (slice at  $y = 0$ .)**