Errata in WH, Chapter 9:

1. p 385: the second equation should be

$$\frac{V}{u_*} = 2.5 \left[\ln \left(\frac{z}{z_0} \right) + 8.1 \frac{z}{L} \right]$$
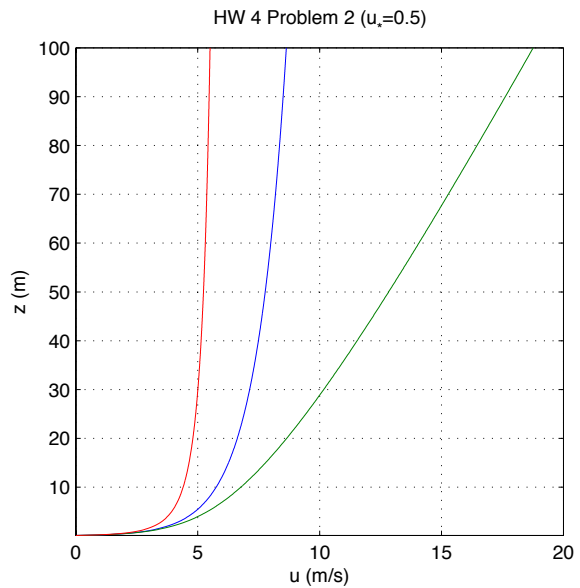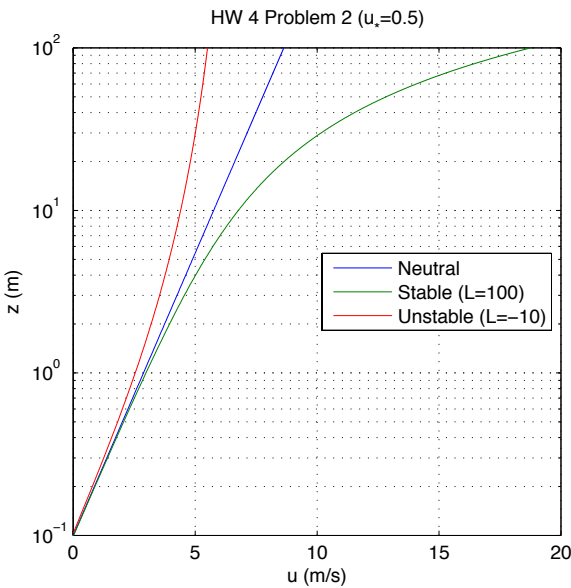
2. p 394, Eq. (9.26) should be

$$\Phi_m = \left[1 - 15 \left(\frac{z}{L} \right) \right]^{-1/4}$$

Problems:

1. WH problem 9.20 (Optional, for extra credit)

2. WH problem 9.21

> Use the expressions for surface-layer wind speed from Eq. (9.22), from Exercise 9.4 in Section 9.3.3, and from the previous exercise [Exercise 9.20] to plot curves of V vs. z for (a) neutral ($L = \infty$), (b) stable ($L = 100$ m), and (c) unstable ($L = -10$ m) stratifications and confirm that their relative shapes are as plotted in Fig. 9.17a and 9.17b. Use $z_0 = 0.1$ m.

Answer:

Difficulties: Some used the wrong equations, and some made coding errors.