Group1

Fernandos Problem 5:

(A) The integral length scale of turbulence is the integral over the perpendicular autocorrelation funtion

(B)

$$\overline{S^2} = 4\overline{v^2}\,\tau_{corr}\,t,$$

$$\frac{d\overline{S^2}}{dt} = 4\overline{v^2}\,\tau_{corr}$$

$$= 12\,K_{turb}.$$

where K_{turb} is the coefficient of turbulent diffusivity.