$$T_{\mathrm{C}} = \frac{5}{9}\left(T_{\mathrm{F}} - 32\right) = 35\ ^{\circ}\mathrm{C}, \quad v = 331\frac{\mathrm{m}}{\mathrm{s}}\sqrt{1 + \frac{35\ ^{\circ}\mathrm{C}}{273\ ^{\circ}\mathrm{C}}} = 351.58\ \mathrm{m/s}$$

$$\Delta x_1 = 351.58\frac{\mathrm{m}}{\mathrm{s}}\left(0.10\ \mathrm{s}\right) = 35.16\ \mathrm{m}, \quad \Delta x_2 = 351.58\frac{\mathrm{m}}{\mathrm{s}}\left(0.15\ \mathrm{s}\right) = 52.74\ \mathrm{m}$$

$$\Delta x = \sqrt{\left(35.16\ \mathrm{m}\right)^2 + \left(52.74\ \mathrm{m}\right)^2} = 63.39\ \mathrm{m}$$