41. (a) The amplitude of each of the traveling waves is half the maximum displacement of the string when the standing wave is present, or 0.25 cm.

(b) Each traveling wave has an angular frequency of $\omega = 40\pi\,\text{rad/s}$ and an angular wave number of $k = \pi/3\,\text{cm}^{-1}$. The wave speed is $v = \omega/k = (40\pi\,\text{rad/s})/(\pi/3\,\text{cm}^{-1}) = 120\,\text{cm/s}$.

(c) The distance between nodes is half a wavelength: $d = \lambda/2 = \pi/k = \pi/(\pi/3\,\text{cm}^{-1}) = 3.0\,\text{cm}$. Here $2\pi/k$ was substituted for $\lambda$.

(d) The string speed is given by $u(x,t) = \partial y/\partial t = -\omega y_m \sin(kx)\sin(\omega t)$. For the given coordinate and time,

$$u = -(40\pi\,\text{rad/s})(0.50\,\text{cm})\sin\left[\left(\frac{\pi}{3}\,\text{cm}^{-1}\right)(1.5\,\text{cm})\right]\sin\left[\left(40\pi\,\text{s}^{-1}\right)\left(\frac{9}{8}\,\text{s}\right)\right] = 0\ .$$