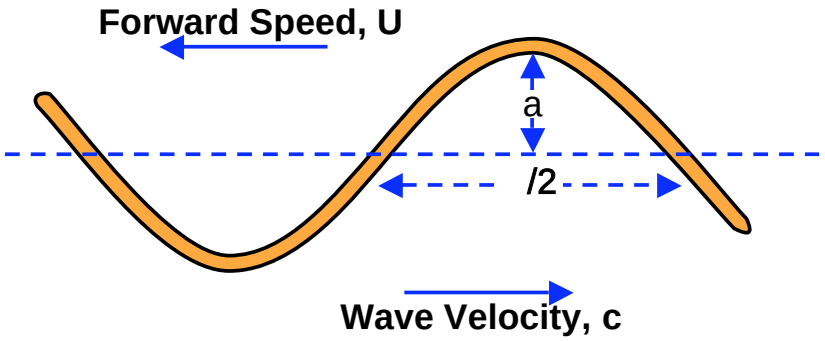
Problem 295D

Some small organisms which are eel-like propel themselves by propagating a planar, sinusoidal wave along their length:



Compute the relationship between U/c (the ratio of the forward propulsive speed, U, to the wave propagation velocity, c, relative to the body) and a/λ, the ratio of the wave amplitude, a, to the wavelength, λ. Assume low Reynolds number drag coefficients and that $k_n = 2k_t$.