

7-23 One end of a stretched string is moved transversely at constant velocity  $u_y$  for a time  $\tau$ , and is moved back to its starting point with velocity  $-u_y$  during the next interval  $\tau$ . As a result, a triangular pulse is set up on the string and moves along it with speed  $v$ . Calculate the kinetic and potential energies associated with the pulse, and show that their sum is equal to the total work done by the transverse force that has to be applied at the end of the string.