Problem 4 (General Energy Equation)

Gasoline is pumped from the gas tank of an automobile to the carburetor through a 10-ft-long ¼ in. fuel line of drawn tubing. The line has five 90° smooth bends with r/d of 6. The gasoline discharges through a 1/32 in-diameter jet in the carburetor to a pressure of 14 psia. The pressure in the tank is 14.7 psia. If the pump is 80% efficient, what power must be supplied by the pump if the automobile is accelerating and consuming fuel at the rate of 0.1 gram/min?