Cycle Performance Activity

Assume that a Carnot engine produces 20 kW of shaft power. The engine absorbs thermal energy at 927 C and rejects thermal energy at 27 C. Assume a fuel with heating value of 42 MJ/kgfuel is burned to supply energy from the high temperature reservoir.

a) What is the thermal efficiency of the engine?

b) What mass flow rate of fuel is required?

c) What is the rate at which heat is rejected in the engine exhaust?