

PRACTICE PROBLEM #3: Answer the questions below regarding the heating of a house in the Midwestern United States.

Assume the following:

1. The house has 2,000 square feet of living space.
 2. 80,000 BTUs of heat per square foot are required to heat the house for the winter.
 3. Natural gas is available at a cost of \$5.00 per thousand cubic feet.
 4. One cubic foot of natural gas supplies 1,000 BTUs of heat energy.
 5. The furnace in the house is 80% efficient.
- (a) Showing all the steps of your calculations, including units,
- (i) calculate the number of cubic feet of natural gas required to heat the house for one winter.
 - (ii) calculate the cost of heating the house for one winter.
- (b) Identify and describe three actions the residents of the house could take to conserve heat energy and lower the cost of heating the house.
- (c) The residents decide to supplement the heating of the house by using a wood-burning stove. Discuss two environmental impacts, one positive and one negative, of using the wood-burning stove.