37.20 What is the thermal efficiency of an air-standard Otto cycle with a volumetric pressure ratio of $8.5:1$?

A. 41%

B. 49%

C. 51%

D. 58%

Look up Otto Cycle and apply the formula for the efficiency. r is the volumetric pressure ratio, and k is the ratio of specific heats. For the air-standard cycle, $k = 1.4$.

$$\eta = 1 - r^{1-k} = 1 - (8.5)^{1-1.4} = 0.575$$

Answer D