

**36.17** A refrigeration cycle using R-134a has a refrigeration effect of  $8000 \frac{Btu}{hr}$  and a coefficient of performance of 11. What is the power required to run the compressor?

- A. 210W
- B. 730W
- C. 28KW
- D. 90KW

Use the definition of **Coefficient of Performance** for **Refrigerators and Air Conditioners**. Solve for the work of the compressor. Convert units to Watts.

$$COP = \frac{Q_L}{W}$$

$$W = \frac{Q_L}{COP} = \frac{8000 \frac{Btu}{hr}}{11} \left( \frac{1W}{3.412 \frac{Btu}{hr}} \right) = 213W$$

**Answer A**