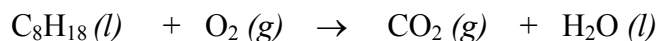# ConcepTest on Writing & Balancing Chemical Equations

Question about balancing chemical reaction:
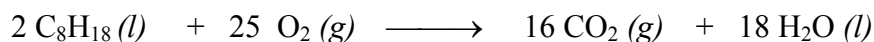
What is the correct coefficient for O_2 in the balanced equation for the combustion of octane, a component of gasoline? The <u>unbalanced</u> equation is:

$$C_8H_{18}\ (l)\quad +\quad O_2\ (g)\quad \rightarrow\quad CO_2\ (g)\quad +\quad H_2O\ (l)$$

1. 3
2. 16
3. 9
4. 25

Correct answer: **4. 25**
Comments to the instructor: The correct balanced equation is:

$$2\ C_8H_{18}\ (l)\quad +\quad 25\ O_2\ (g)\quad \longrightarrow\quad 16\ CO_2\ (g)\quad +\quad 18\ H_2O\ (l)$$

Choice 1 indicates student is ignoring the coefficients for CO_2 and H_2O; choice 2 indicates student is only considering the oxygen in CO_2 on the right hand side of the balanced equation to balance O_2 on the left hand side of the equation; choice 3 indicates the student is only considering the oxygen in H_2O on the right hand side of the equation to balance the O_2 on the left hand side of the equation.