

### Answer on Question #67394, Chemistry / General Chemistry

A person who exercises vigorously several hours a day might take in about  $22 \text{ m}^3$  of air per day. A tree about 33 m tall and 0.55 m in diameter at its base produces about 84,000 L of oxygen per year. How many people, breathing as described this way, would five such trees supply with oxygen? (Please recall, that  $1 \text{ m}^3 = 1000 \text{ L}$ , and that normally there's about 20% of oxygen in the air around.)

#### Solution:

Calculation of oxygen produced by 5 trees:

$$5 * 84.000 = 420.000 \text{ (l)} = 420 \text{ m}^3$$

Calculation of air:

$$420 \times \frac{100\%}{20\%} = 2100 \text{ (m}^3\text{)}$$

Calculation of people:

$$\frac{2100 \text{ m}^3}{22 \text{ m}^3} = 95.5 = 95 \text{ people}$$

**Answer:** 95 people.