

Chem 112 - Conversion Practice Problems

SOLUTIONS

1. A. $12.0 \cancel{\text{in}} \times \frac{2.54 \cancel{\text{cm}}}{1 \cancel{\text{in}}} = 30.48 \approx 30.5 \text{ cm}$
- B. $12.0 \cancel{\text{in}} \times \frac{2.54 \cancel{\text{cm}}}{1 \cancel{\text{in}}} \times \frac{1 \text{ m}}{100 \cancel{\text{cm}}} = 0.3048 \approx 0.305 \text{ m}$
2. $10.0 \cancel{\text{km}} \times \frac{1000 \cancel{\text{m}}}{1 \cancel{\text{km}}} \times \frac{1.094 \cancel{\text{yd}}}{1 \cancel{\text{m}}} \times \frac{1 \text{ mi}}{1760 \cancel{\text{yd}}} = 6.2159 \approx 6.22 \text{ mi}$
3. $14110 \cancel{\text{ft}} \times \frac{1 \cancel{\text{yd}}}{3 \cancel{\text{ft}}} \times \frac{1 \text{ m}}{1.094 \cancel{\text{yd}}} = 4299.2078 \approx 4299 \text{ m}$
4. $20,000 \cancel{\text{kg}} \times \frac{3 \cancel{\text{dm}}}{1 \cancel{\text{kg}}} \times \frac{10 \cancel{\text{ct.}}}{1 \cancel{\text{dm}}} \times \frac{100 \cancel{\text{ft}}}{1 \cancel{\text{ct.}}} \times \frac{6 \text{ ft}}{1 \cancel{\text{ft}}} = 3.6 \times 10^8 \text{ ft}$
5. $\frac{60 \cancel{\text{mi}}}{1 \cancel{\text{h}}} \times \frac{1.609 \cancel{\text{km}}}{1 \cancel{\text{mi}}} = 96.54 \text{ km/h} \approx 100 \text{ km/h}$
6. $1 \cancel{\text{day}} \times \frac{24 \cancel{\text{h}}}{1 \cancel{\text{d}}} \times \frac{60 \cancel{\text{min}}}{1 \cancel{\text{h}}} \times \frac{60 \text{ s}}{1 \cancel{\text{min}}} = 86400 \text{ s}$
7. $\frac{72 \cancel{\text{hr}}}{1 \cancel{\text{d}}} \times \frac{1000 \cancel{\text{m}}}{1 \cancel{\text{km}}} \times \frac{100 \cancel{\text{cm}}}{1 \cancel{\text{m}}} \times \frac{1 \cancel{\text{hr}}}{60 \cancel{\text{min}}} \times \frac{1 \text{ min}}{60 \text{ s}} = 2.0 \times 10^3 \text{ cm/s}$
8. $\frac{40 \cancel{\text{mi}}}{1 \cancel{\text{gal}}} \times \frac{1.609 \cancel{\text{km}}}{1 \cancel{\text{mi}}} \times \frac{0.264 \cancel{\text{gal}}}{1 \text{ L}} = 0.47326 \approx 0.473 \text{ km/L}$
9. $0.01 \times \frac{1 \cancel{\text{oz}}}{1323} \times \frac{1 \cancel{\text{lb}}}{16 \cancel{\text{oz}}} \times \frac{454 \cancel{\text{g}}}{1 \cancel{\text{lb}}} \times \frac{1000 \text{ mg}}{1 \cancel{\text{g}}} = 0.21447 \text{ mg}$