Chem 201A  
**Worksheet 1 Key** (Lab Manual pg 115)

Looking at the answers while you are doing the problems will not help you to master the material. Instead, you should do one or a few problems, grade yourself on those and then continue. If you don’t get the problem correct the first time, learn WHY you got it wrong so that you won’t make the same mistake again. Then, do the same problem, or a similar one, the next day for more practice.

1. $3.459 \times 10^2$ nm  
   $5.4 \times 10^{-3}$ mL  
   $5.0 \times 10^{-7}$ kg  
   $9.3 \times 10^7$ miles  
   $1.67 \times 10^{-23}$ g

2. $2.5 \times 10^5$

3. $4.5 \times 10^3$ cm  
   $12$ m  
   $3.58 \times 10^{-3}$ cs  
   $9.5 \times 10^7$ nm

4. $1 \times 10^4$ cm$^2$  
   $1.00 \times 10^2$ cm$^2$  
   $1 \times 10^6$ cm$^3$  
   $2.05 \times 10^3$ cm$^3$

5. | Number       | Sig figs | Number       | Sig figs     |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3.4680</td>
<td>5</td>
<td>34,608</td>
<td>5</td>
</tr>
<tr>
<td>0.3468</td>
<td>4</td>
<td>3,460,800</td>
<td>Ambiguous</td>
</tr>
<tr>
<td>0.03468</td>
<td>4</td>
<td>3.4600 x 10^{-2}</td>
<td>5</td>
</tr>
<tr>
<td>0.034680</td>
<td>5</td>
<td>3.46 x 10^{-2}</td>
<td>3</td>
</tr>
</tbody>
</table>

6. | $303.68$ m    | 0.001 g  | 141,000 residents | Ambiguous  |
   | $0.010$ sec   | 25.0 mL  | 14 eggs (counted) | infinite   
   | $5.882 \times 10^{32}$ atoms | 12.20 µg |

7. **Rules for Sig Figs:**

   For multiply/divide, use the **fewest number of sig figs**

   For addition/subtraction, use the **fewest decimal places**

8. $4 \times 10^{11}$

9. $0.06707$ km/s or $67.07$ m/s

10. $1.34$ cm$^3$

11. a. $181.76$ °F  
    b. $264.15$ K