Chemistry 101-Unit 3
Answers to Practice Problems

Identify the number of significant figures:

1.	54.304 g	***5***	26.	60 s/min	***infinite***
2.	12 in	***2***	27.	0.94635 L/qt	***5***
3.	0.008511 g/cm	***4***	28.	1000 mL/L	***infinite***
4.	45.0 mL	***3***	29.	1×10^{10} mg	***1***
5.	1030. mm	***4***	30.	45	***infinite***
6.	100 cm/m	***infinite***	31.	0.00318 cm^2	***3***
7.	453.59 g/lb	***5***	32.	5.000 mL	***4***
8.	43400 mg	**3**	33.	7500 m	**2**
9.	5	***infinite***	34.	3500. g	***4***
10.	55 s	***2***	35.	6.020 lb	***4***
11.	102000 mm	***3***	36.	0.040500 kg	***5***
12.	54.00 mL	***4***	37.	10400 mm	**3**
13.	10.00 g	***4***	38.	4 qt/gal	***infinite***
14.	0.03070 L	***4***	39.	13.6 g/mL	***3***
15.	16 oz/lb	***infinite***	40.	35.3 mi/hr	***3***
16.	2.54 cm/in	***infinite***	41.	105.2 L	***4***
17.	125	***infinite***	42.	18.02 g/mol	***4***
18.	138 g	***3***	43.	1000 mg/g	***infinite***
19.	40.070 g	***5***	44.	15 km	***2***
20.	0.0000618 cm^3	***3***	45.	20.00 mL	***4***
21.	480. min	***3***	46.	1025	***infinite***
22.	620 mL	***2***	47.	0.00004 g	***1***
23.	3.40×10^2 m/s	***3***	48.	450. oz	***3***
24.	4.00×10^{-3} L	***3***	49.	3.200 s	***4***
25.	3.00×10^{10} cm/s	***3***	50.	4.000×10^2 g	***4***

Solve the following using the proper number of significant figures:

1. 107.40 g – 98.107.40 g = 9.292 g ➔ **9.29 g**

2. 6.248×10^{-3} m + 9.342×10^{-2} m = **9.967×10^{-2} m**

3. 85 mL + 55.3 mL = 140.3 mL ➔ **140 mL**

4. 8.0 g x 5.2 cm = 41.6 g cm ➔ **42 g cm**

5. $13.68 \text{ ft} \times \frac{12 \text{ in}}{1 \text{ ft}} \times \frac{2.54 \text{ cm}}{1 \text{ in}} \times \frac{10 \text{ mm}}{1 \text{ cm}} = 4169.664 \text{ mi}$ ➔ **4.170×10^{3} mi**

6. 3.542 lb x 2 = **7.084 lb**

7. $\frac{50.0 \text{ km}}{2 \text{ hr}} = 25 \text{ km/hr}$ ➔ **30 km/hr**

8. 252.0 g / 84.00 mL = **3.000 g/mL**

9. 9.3×10^{2} mi + 4.32×10^{3} mi = 52.5×10^{2} mi ➔ **5.3×10^{3} mi**

10. 100.780 g - 99.86 g = 0.920 g ➔ **0.92 g**

11. $\frac{3.52 \times 10^{-3} \text{ g}}{4.3 \times 10^{-5} \text{ g}} \times 2 \times \frac{1.002 \text{ amu}}{1 \text{ atom}}$ = **1.6×10^{2} amu/atom**

12. 55.3892 cm / 9.00 s = **6.15 cm/s**

13. 15.08 mm x 5 mm = 75.4 mm^2 ➔ **80 mm^2**

14. 1.234 cm^3 x 7 = **8.638 cm^3**

15. $\frac{7.8 \times 10^{-5} \text{ cm}^3}{3.89 \times 10^{2} \text{ cm}^2}$ = **2.0×10^{-7} cm**

Write the factor that would be used to convert the following:

a)	g ➔ mg	**1000 mg / 1 g**	b)	cm ➔ m	**1 m/100 cm**
c)	in ➔ ft	**1 ft/ 12 in**	d)	s ➔ min	**1 min/60 s**
e)	min ➔ hr	**1 hr/60 min**	f)	gal ➔ qt	**4 qt/1 gal**
g)	ft ➔ mi	**1 mi/5,280 ft**	h)	m ➔ km	**1 km/1000 m**
i)	lb ➔ g	**454 g/1 lb**	j)	L ➔ qt	**1.06 qt/1 L**
k)	kg ➔ g	**1000 g/1 kg**	l)	days ➔ weeks	**1 week/7 days**
m)	hr ➔ min	**60 min/1 hr**	n)	years ➔ days	**365 days/1 year**
o)	in ➔ cm	**2.54 cm/1 in**	p)	mm ➔ m	**1 m/1000 mm**
q)	L ➔ cL	**100 cL/1 L**	r)	pint ➔ cups	**2 c/1 pt**