

# CHEMISTRY :

# MEASUREMENT PRACTICE III

**A. Determine the number of significant digits in the following numbers:**

- \_\_\_\_\_ 1) 5600  
\_\_\_\_\_ 2) 45.00  
\_\_\_\_\_ 3) 105.0  
\_\_\_\_\_ 4) 0.00565  
\_\_\_\_\_ 5) 0.005400  
\_\_\_\_\_ 6) 89.543  
\_\_\_\_\_ 7) 5, 056, 300  
\_\_\_\_\_ 8) 95.0540  
\_\_\_\_\_ 9) 93,000,000

**B. Perform the indicated operations and express your answer to the correct number of significant digits:**

- \_\_\_\_\_ 10)  $(6.92)(7.9)$   
\_\_\_\_\_ 11)  $(8.245)(9.00)$   
\_\_\_\_\_ 12)  $(4.46)/(6.52)$   
\_\_\_\_\_ 13)  $(9.825)/(8.20)$   
\_\_\_\_\_ 14)  $(8.95) (9.162)/(4.25) (6.3)$

**C. Perform the indicated operations and express your answer to the correct number of significant digits:**

- \_\_\_\_\_ 15)  $5.50 + 0.528 + 9.2$   
\_\_\_\_\_ 16)  $420 + 8900 + 620$   
\_\_\_\_\_ 17)  $0.00526 - 0.52$   
\_\_\_\_\_ 18)  $820.0 + 19.5 + 6$   
\_\_\_\_\_ 19)  $4,285.75 - 520.1 - 386.255$   
\_\_\_\_\_ 20)  $(0.526) (895) + 20.8$   
\_\_\_\_\_ 21)  $3.414 \text{ s} + 10.02 \text{ s} + 58.325 \text{ s} + 0.000 \text{ 98 s}$   
\_\_\_\_\_ 22)  $1884 \text{ kg} + 0.94 \text{ kg} + 1.0 \text{ kg} + 9.778 \text{ kg}$   
\_\_\_\_\_ 23)  $2104.1 \text{ m} - 463.09 \text{ m}$   
\_\_\_\_\_ 24)  $2.326 \text{ h} - 0.104 \text{ 08 h}$   
\_\_\_\_\_ 25)  $10.19 \text{ m} \times 0.013 \text{ m}$

- \_\_\_\_\_ 26)  $140.01 \text{ cm} \times 26.042 \text{ cm} \times 0.0159 \text{ cm}$   
\_\_\_\_\_ 27)  $80.23 \text{ m} \div 2.4 \text{ s}$   
\_\_\_\_\_ 28)  $4.301 \text{ kg} \div 1.9 \text{ cm}^3$   
\_\_\_\_\_ 29)  $3.68 + 7.3645 + 0.5$   
\_\_\_\_\_ 30)  $0.243 + 76.720 + 4.6494$   
\_\_\_\_\_ 31)  $14.745 - 1.60$   
\_\_\_\_\_ 32)  $0.5642 - 0.260$   
\_\_\_\_\_ 33)  $6.02 \times 2.0$   
\_\_\_\_\_ 34)  $0.65 \times 427$   
\_\_\_\_\_ 35)  $0.022 \times 0.467$   
\_\_\_\_\_ 36)  $174 \div 24$   
\_\_\_\_\_ 37)  $420 \div 17.5$   
\_\_\_\_\_ 38)  $3.0899 \text{ mm} \times 22.4 \text{ mm}$   
\_\_\_\_\_ 39)  $3.4500 \text{ cm}^2 \div 450 \text{ cm}$   
\_\_\_\_\_ 40)  $13.80 \text{ cm} - 6.0741 \text{ cm}$

**D. For each item below determine the number of significant digits in the number or answer to the problem: (don't do the calculation)**

- \_\_\_\_\_ 41) 804.58  
\_\_\_\_\_ 42) 250.00  
\_\_\_\_\_ 43) 3000  
\_\_\_\_\_ 44)  $10.00 \text{ m} \times 84.767 \text{ m}$   
\_\_\_\_\_ 45) 0.00300900870  
\_\_\_\_\_ 46)  $400 \times 87,488$   
\_\_\_\_\_ 47) 180.0001  
\_\_\_\_\_ 48)  $3.0 \times 4.000$   
\_\_\_\_\_ 49) 0.00560  
\_\_\_\_\_ 50)  $0.7600 \div 1.50$

**CHEMISTRY****SIGNIFICANT FIGURE PRACTICE IV**

Write the number of significant figures in the following measurements.

1. \_\_\_\_\_ 2.708
2. \_\_\_\_\_ 16.3050
3. \_\_\_\_\_ 50.007
4. \_\_\_\_\_ 3000010
5. \_\_\_\_\_ 0.00045
6. \_\_\_\_\_ 0.00458
7. \_\_\_\_\_ 589000
8. \_\_\_\_\_  $6.38 \times 10^9$
9. \_\_\_\_\_ 50800
10. \_\_\_\_\_  $4.678 \times 10^{22}$
11. \_\_\_\_\_ .789.006
12. \_\_\_\_\_  $3.67 \times 10^{-4}$
13. \_\_\_\_\_ 507.7800
14. \_\_\_\_\_ 0.000000875
15. \_\_\_\_\_ 0.00480
16. \_\_\_\_\_ 3322.008
17. \_\_\_\_\_ 540300
18. \_\_\_\_\_ 4506.003
19. \_\_\_\_\_ 287.345
20. \_\_\_\_\_ 56.000

21. Round off the following numbers to three significant figures.

- (a) 4325
- (b)  $6.873 \times 10^3$
- (c) 0.17354
- (d) 7.8939
- (e)  $9.237 \times 10^{-3}$
- (f) 0.0299817

22. How many significant figures does each of the numbers contain?

- (a) 0.0278 meter
- (b) 1.3 centimeters
- (c) 1.00 foot
- (d) 8 021 yards
- (e)  $7.98 \times 10^{-3}$  pound
- (f) 0 2003 ton
- (g)  $4.69 \times 10^4$  tons
- (h)  $1 \times 10^{12}$  atoms
- (i)  $1.73 \times 10^{24}$  atoms

23. Express the following numbers in standard exponential form with the indicated number of significant figures.

- (a) 1000 (2 sig. fig.)
- (b) 43,927 (3 sig. fig.)
- (c) 0.000286 (3 sig. fig.)
- (d) 0.000098765 (5 sig. fig.)
- (e) 10,000 (you decide how many significant figures)

24. Express the following exponentials as ordinary numbers.

- (a)  $7.23 \times 10^4$
- (b)  $8.193 \times 10^2$
- (c)  $1.98 \times 10^{-3}$
- (d)  $7.51 \times 10^{-7}$
- (e)  $5.43 \times 100$