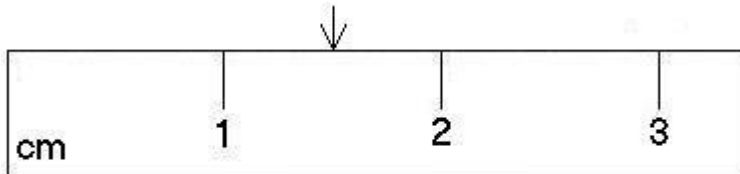


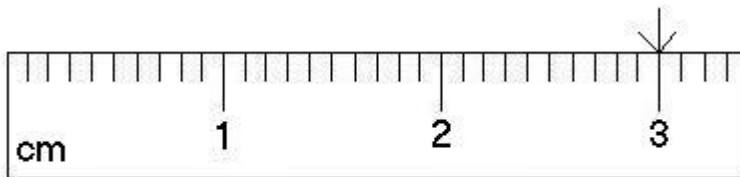
Worksheet: Significant Figures

A. True / False

1. _____ (T/F) Significant figures include all the digits that can be known precisely and the last digit which must be estimated.
2. _____ (T/F) Significant figures are an indication of the precision of a measurement.
3. _____ The best measurement, using significant figures, at the arrow below would be 1.5 cm, 1.50 cm, 1.500 cm or 1.5000 cm



4. _____ The best measurement, using significant figures, at the arrow below would be 3.0 cm, 3.00 cm, 3.000 cm or 3.0000 cm.



5. _____ (T/F) The ruler drawn in number 3 has a greater degree of precision than the ruler in number 4 and therefore the measurements determined by the ruler in number 3 have a greater number of significant figures.
6. _____ If a ruler was used to measure an object and the measurement obtained was 5.555 cm, what were the smallest divisions marked on the ruler? 0.1 cm, 0.01 cm, 0.001 cm or 0.0001 cm
7. _____ (T/F) All nonzero digits recorded in a measurement are significant.
8. _____ (T/F) All zeros recorded in a measurement are significant.
9. _____ (T/F) All zeros appearing between nonzero digits are always significant.
10. _____ (T/F) All zeros in front of nonzero digits are significant.
11. _____ (T/F) All zeros to the right of nonzero digits are significant.
12. _____ (T/F) Zeros to the right of nonzero digits and a decimal point are significant.
13. _____ (T/F) Writing measurements in scientific notation is a way to avoid confusion as to which zeros are significant.

B. Determine the number of significant figures in each of the following numbers.

- | | |
|-------------------|---------------------|
| 14. _____ 123.00 | 19. _____ 3 000 000 |
| 15. _____ 1 002 | 20. _____ 3.400 |
| 16. _____ 0.00506 | 21. _____ 510.005 |
| 17. _____ 502 000 | 22. _____ 210 000 |
| 18. _____ 0.07080 | 23. _____ 0.000230 |

C. Round off the following numbers to the number of significant figures indicated in parentheses.

24. 2.3355 (4) _____

27. 555 005 (3) _____

25. 3.999 (2) _____

28. 8775 (3) _____

26. 4.401 (2) _____

29. 314.005 (4) _____

D. Addition and Subtraction: Determine the sum or difference of the following and express the final answer with the correct number of significant figures.

30. _____ $2.225 + 5.55$

31. _____ $3.1000 - 1.99$

32. _____ $5.555 + 4.445$

33. _____ $3.339 - 1.000$

34. _____ $2.22 + 8.8$

E. Multiplication and Division: Determine the product or quotient of the following and express the final answer with the correct number of significant figures.

35. _____ $25.00 / 5.0$

36. _____ 4.00×2.0

37. _____ 2.55×3.368

38. _____ $30.0 / 6.000$

39. _____ 25.56×2.0

40. _____ $500.0 / 1.0$

41. _____ 44.5×2.00

42. _____ $100.0 / 10$

Answers to selected questions: 14. 5, 15. 4, 16. 3, 17. 3, 18. 4, 19. 1, 20. 4, 21. 6, 22. 2, 23. 3, 24. 2.336, 25. 4.0, 26. 4.4, 27. 5.55×10^5 , 28. 8780, 29. 314.0, 30. 7.78, 31. 1.11, 32. 10.000, 33. 2.339, 34. 11.0, 35. 5.0, 36. 8.0, 37. 8.59, 38. 5.00, 39. 51, 40. 5.0×10^2 , 41. 89.0, 42. 10