Identifying significant figures (SF) in measurements

1. A non-zero digit is significant.
   3.78 cm
   “3,” “7,” and “8” are significant. The measurement has three SF.

2. Zeros between non-zero digits (or other significant digits) are significant.
   60.037 km has five SF

3. Zeros to the right of non-zero digits and to the left of the decimal point (or assumed decimal point), are not significant. They are merely “place holders.”
   43,000 s has two SF
   However, zeros to the right of the decimal point and to the right of a significant digit, are significant.
   720.610 km has six SF

4. Zeros to the left of non-zero digits and to the right of the decimal point are not significant. They are merely “place holders.”
   0.0000293 m has three SF

Significant figures in mathematical operations

Multiplication and division

- The final result of a multiplication or division should have only as many significant figures as the number with the least number of significant figures used in the calculation.

  $11.2\ cm \times 6.7\ cm = 75.04\ cm^2 = 75\ cm^2$

Addition and substraction

- The final result of an addition or subtraction should have only as many decimal places as the number with the least number of decimal places used in the calculation.

  $25.14\ cm + 73.4\ cm = 98.54\ cm = 98.5\ cm$