Rules for Significant Digits

1. All non-zero digits are significant.
   Example: 345.6 ... 4 sig digs
   7.23×10^2 ... 3 sig digs — only the number portion counts for sig digs

2. Zeroes between non zero digits or significant digits are always significant.
   Example: 7003 ... 4 sig digs
   6.090903 ... 7 sig digs

3. Leading zeroes (even after a decimal point) are NOT significant.
   Example: 0.0056 ... 2 sig digs
   0.0101 ... 3 sig digs

4. Trailing zeroes after a decimal point are significant.
   Example: 2.1300 ... 5 sig digs
   30.10 ... 4 sig digs

5. Trailing zeroes with no decimal point, are NOT significant.
A bar or underline is sometimes used to indicate significance.
   Example: 100 ... 1 sig dig, zeroes unknown
   130̲0 ... 3 sig digs
Scientific notation helps because trailing zeroes are now after a decimal point and therefore significant.
   100 ... 1 sig dig
   1.00×10^2 ... 3 sig digs
Adding a decimal point after zeroes make them significant.
   Example: 100. 3 dig sigs

Exceptions: Counted numbers — infinite sig digs
   Example: 4 pens
Assigned conversions
   Example: 1000 m in 1 km
Numbers in most equations
   Example: y = 2x the 2 has infinite sig digs

Examples: 0.05802 … 4 sig digs
30.0 … 3 sig digs
12 400 … 3 sig digs, zeroes unknown
6.70×10^8 … 3 sig digs
14 students …. Counted value, infinite sig digs
10 400. … 5 sig digs
0.000 000 300 … 3 sig digs

Certainty Rule for Multiplying and Dividing:
The answer must be rounded to have the same number of sig digs as the number being multiplied or divided with the *least* number of sig digs.
   Example: 7938 / 25.8 = 307.6744 — rounded to 308 — 3 sig digs
   14.18 x 3.5999 = 51.04658 — rounded to 51.05 — 4 sig digs

Precision Rule For Adding and Subtracting:
The answer must have the same number of decimal places as the number being added or subtracted with the *least* number of decimal places.
   Example: 56.78 - 1.332 = 55.45 2 decimal places
   32.1 + 47.22 + 12.781 = 92.1 1 decimal place