CHAPTER 1: STANDARD FORM

Example of SF

NUMBER	SF
71	2SF
53.19	4SF
3.07	3SF
4.70	3SF
0.07	1SF
20.00	4SF
0.01230	4SF
20	1SF
700	1SF

- ALL ZEROS BETWEEN NON-ZERO DIGITS ARE SIGNIFICANT
- ALL ZEROS AFTER ANY NON-ZERO DIGIT IN A DECIMAL ARE SIGNIFICANT
- ALL ZEROS BEFORE ANY NON-ZERO DIGIT IN A DECIMAL ARE NOT SIGNIFICANT
- ALL ZEROS AFTER ANY NON-ZERO DIGIT IN A WHOLE NUMBER ARE NOT SIGNIFICANT UNLESS STATED OTHERWISE

1. **ROUNDING OFF NUMBERS**

84.56 = **84.6 (3 SF)**

7.0142 = **7.014 (4 SF)**

0.00159 = **0.002(4** SF) or **0.0016 (5 SF)**

2. **STANDARD FORM**

- THE FIRST NUMBER MUST BE CHANGED TO A DIGIT THAT IS BETWEEN 1 TO 9 ONLY AND TO BE MULTIPLIED BY AN INDEX

780300 = **7.803×10^5** * THE DECIMAL POINT MOVES 5 TIMES TO THE LEFT

0.07901 = **7.901×10^{-2}** * THE DECIMAL POINT MOVES 2 TIMES TO THE RIGHT

5.041×10^3 = **5041** * THE DECIMAL POINT MOVES 3 TIMES TO THE RIGHT

7.0063×10^5 = **700630** * THE DECIMAL POINT MOVES 5 TIMES TO THE RIGHT

8.61×10^{-3} = **0.00861** * THE DECIMAL POINT MOVES 3 TIMES TO THE LEFT

3. **COMPUTATION OF NUMBERS IN STANDARD FORM**

- TWO NUMBERS IN STANDARD FORM CAN BE ADDED OR SUBTRACTED IF BOTH NUMBERS HAVE THE SAME INDEX **$a \times 10^n + b \times 10^n = (a + b) \times 10^n$**

$3.5 \times 10^3 + 2.103 \times 10^3 =$ **$(3.5 + 2.103) \times 10^3 = 5.603 \times 10^3$**

$5.89 \times 10^{-3} - 2.01 \times 10^{-3} =$ **$(5.89 - 2.01) \times 10^{-3} = 3.88 \times 10^{-3}$**

$5.6 \times 10^5 + 2.41 \times 10^7 =$ **$0.056 \times 10^7 + 2.41 \times 10^7$**

$= (0.056 + 2.41) \times 10^7$ = **2.456×10^7**

$3.4 \times 10^{-4} - 8 \times 10^{-5} =$ **$3.4 \times 10^{-4} - 0.8 \times 10^{-4}$**

$= (3.4 - 0.8) \times 10^{-4} = 2.6 \times 10^{-4}$

- WHEN TWO NUMBERS IN STANDARD FORM ARE MULTIPLIED OR DIVIDED, THE ORDINARY NUMBERS ARE MULTIPLIED OR DIVIDED WITH EACH OTHER WHILE THEIR INDICES ARE ADDED OR SUBTRACTED

$(a \times 10^3) \times (b \times 10^5) = (a \times b) \times 10^{3+5} =$ **$ab \times 10^8$**

$(a \times 10^9) \div (b \times 10^5) = (a \div b) \times 10^{9-5} =$ **$a/b \times 10^4$**

$9.5 \times 10^3 \times 2.2 \times 10^2 =$ **$(9.5 \times 2.2) \times 10^{3+2}$**

= **$20.9 \times 10^5 = 2.09 \times 10^1 \times 10^5$**

= **$2.09 \times 10^{1+5} = 2.09 \times 10^6$**

$(7.2 \times 10^5) \div (6 \times 10^{-2}) =$ **$(7.2/6) \times 10^{5-(-2)} = 1.2 \times 10^{5+2} = 1.2 \times 10^7$**