

SGPA (Semester Grade Point Average) Formula:

$$SGPA = (\text{Sum}(C_i \times G_i)) / \text{Sum}C_i$$

Where:

- $C_i$  = Credits of the i-th subject
- $G_i$  = Grade point obtained in the i-th subject
- $\text{Sum}(C_i \times G_i)$  = Sum of the product of credits and grade points
- $\text{Sum}C_i$  = Total credits of all subjects in the semester

Example:

Subject	Credits ( $C_i$ )	Grade Point ( $G_i$ )
Math	4	9
Physics	3	8
English	2	10
CS	3	8.5

$$\begin{aligned} SGPA &= (4 \times 9 + 3 \times 8 + 2 \times 10 + 3 \times 8.5) / (4 + 3 + 2 + 3) \\ &= (36 + 24 + 20 + 25.5) / 12 \\ &= 105.5 / 12 = 8.79 \end{aligned}$$

CGPA (Cumulative Grade Point Average) Formula:

$$\text{CGPA} = (\text{Sum}(\text{Si} \times \text{Ci})) / \text{SumCi}$$

Where:

- Si = SGPA of the i-th semester
- Ci = Total credits in the i-th semester
- Sum(Si × Ci) = Sum of weighted SGPAs
- SumCi = Total credits for all semesters

Example:

Semester	SGPA (Si)	Credits (Ci)
Sem 1	8.5	24
Sem 2	9.0	26
Sem 3	8.2	28

$$\text{CGPA} = (8.5 \times 24 + 9.0 \times 26 + 8.2 \times 28) / (24 + 26 + 28)$$

$$= (204 + 234 + 229.6) / 78$$

$$= 667.6 / 78 \text{ approximately } 8.56$$