If n = the number of terms

then we can use the following formulae to work out which term is Q_1, Q_2 and Q_3

Term $Q_1 = \frac{(n+1)}{4}$

Term $Q_2 = \frac{(n+1)}{2}$

Term $Q_3 = \frac{3(n+1)}{4}$

* terms must be ordered : LOWEST → HIGHEST

2. Nine students submitted their assignments which were marked out of 40.
The marks obtained were:

37, 34, 34, 29, 27, 27, 10, 4, 34

(i) Write down the range of marks. (ii) Write down the median mark.
(iii) Find (a) the lower quartile (b) the upper quartile (c) the interquartile range.

Reorder: 4, 10, 27, 27, 29, 34, 34, 34, 37 — $n = 9$ terms

(i) Range = Highest − Lowest

Range = 37 − 4 = 33

(ii) Median term

$Q_2 = \frac{(n+1)}{2}$

term $Q_2 = \frac{10}{2} = 5^{th}$ term = 29

$Q_1 = \frac{(n+1)}{4}$

term $Q_1 = \frac{10}{4} = 2\frac{1}{2}^{th}$ term $= \frac{10+27}{2} = 18.5$

$Q_3 = \frac{3(n+1)}{4}$

term $Q_3 = \frac{3(10)}{4} = 7\frac{1}{2}^{th}$ term $= \frac{34+34}{2} = 34$

I.Q.R. = $Q_3 - Q_1$

IQR = 34 − 18.5 = 15.5