Instructions and Example Calculation
(taken from: *"Calculating on Slide Rule and Disc – 2 x 3 …… approximately 6 – Portrait of an Era"* by IJzebrand. Schuitema, 2000)

A very simple numeric example may illustrate the formulae. We are considering an environment *R* with size 50 x 20 x 2 km, D = 72 and R = 5,4 x 10^{12} ton.
We take 100 samples and each sample represents a volume of 0,5 x 0,5 x 0,5 km, d =1,5 and the average weight is 3,4 x 10^{8} ton.

ppm	frequency	f.ppm	1n ppm	f.ln ppm	$n_i(\ln x_i - \ln \gamma)^2$
50	35	1750	3,91	136,8	24,15
100	20	2000	4,61	92,2	0,34
150	10	1500	5,01	50,1	0,73
200	5	1000	5,30	26,5	1,56
250	20	5000	5,52	110,4	12,16
300	5	1500	5,70	28,5	4,61
350	5	1750	5,86	29,3	6,27
		∑= 14500		∑=474	∑= 49,82
		μ = 145		1nγ_r = 4,74	σ = 0,706
				γ_r = 114	

Now we may calculate:

$$\frac{\mu}{\gamma_R} = 1{,}27\ ;\ \frac{d}{D} = 0{,}021\ ;\ \alpha = 0{,}043\ ;\ \frac{r}{R} = 6{,}3\ x\ 10^{-5}$$

The value of α can also be estimated with the slide rule:

1. Calculate $\frac{\mu}{\gamma_R}$ = 1,27 (On the slide rule μ is called $\bar{x}$)
2. Put the hairline on the value of $\frac{\mu}{\gamma_R}$, on the upper scale.
3. Calculate $\frac{d}{D}$ = 0,021

4. Move the central slide until $\frac{d}{D}$ is under the hairline (scale 3).

5. Move hairline to the Δ marker on the $\frac{d}{D}$ scale.

6. Read the value of the dispersion α = 4,3 %.

The value of α may be used to infer the probability of deposits in respect to grade and size. If, for example, we want to know the total quantity of ore with a grade ≥ x_k = 300 ppm, in deposits with d = 1,5 (average weight 0,34 x 10^9 ton ore), we proceed as follows:

1. Put the hairline over α = 4,3

2. Move central slide until the Δ marker on the $\frac{d}{D}$ scale is under the hairline.

3. Move the hairline to $\frac{d}{D}$ = 0,021 (scale 3).

4. Move the central slide until the left extremity of the $\frac{x_k}{\gamma_R}$ scale is under the hairline.

5. Move hairline over the value of $\frac{x_k}{\gamma_R}$ = 2,63

6. Read the value of $\frac{r}{R}$ = 8 x 10^{-3}

7. Calculate $t = \frac{r}{R}$ x R = 4,3 x 10^{-10} ton ore.

slide rule in worldwide use

Analogous calculations may be done for larger deposits. Also the environment may be increased to entire countries, continents and even the whole world. In fact Dr. Brinck published predictions for the total inventory of uranium, copper, zinc and lead, specified to grade and size of the deposits, for the whole world. Most of these calculations were done with the aid of the geochemical slide rule.