Instructions for use of the Universal Circle Slide-rule (UCSR)

The UCSR is equipped with five rings, one fixed and five sliding. The five rings are graduated into three different types of scales: X, X^3, X^2. The full-length, through-going scale lines are called '0' or zero lines.

The fixed ring X^3 is the cubic scale. It is divided into three X scales: from 0 to 10, from 10 to 100 and from 100 to 1000, and is used particularly for finding the cube-root of a number or multiplying a number by itself three times.

The three X rings are used for multiplication and division or a combination of both. The two bottom rings X^2 are used for the same purpose and for calculating the square-root of a number. They are divided into X scales.

When you calculate with one or more decimals by means of the UCSR, you do not put in the decimal point until the calculation is complete. For example, 2.1×3.5 is multiplied as 21×35=735, and the decimal point is then added=7.35.

Using the X^3 scale together with the X scale

Ex. 1. $3^3=3\times3\times3=27$

Set the '0' line on the top sliding ring under the '0' line on the fixed ring, find number 3 on the scale and read off the result (=27) on X^3.

Ex. 2. $\sqrt[3]{60}=3.92$

Set scales X^3 and X on the '0' line, find number 60 on the X^3 scale and read the result (=3.92) on the X scale.

Using the X scales

Ex. A. $14\times3.5=49$

Set the '0' line on the top X scale over 14 on the next X scale down. Then find 3.5 on the top X scale and read the result (=49) on the next scale down.

Ex. B. $5\times7\times4=140$

Set the '0' line on the top X scale over the number 5 on the next X scale down, and read the intermediate result (=35) under the number 7 on the top X scale. Then set the '0' line on the third X scale under 35, and read the final result (=140) above the number 4.

If you use all three X scales, there is no need to keep the intermediate result in mind. You can continue multiplication by switching between the top and bottom X scales, while keeping the middle one in the same place. As in this example:

Ex. C. $2\times3\times7\times9\times3\times2=2268$

Set the '0' line on the top 'X' scale above the number 2 on the middle scale, and read the result under the number 3. Set the '0' line on the bottom X scale under this result (=6), and read the result over the number 7 (=42). Now set the '0' line on the top X scale over 42, and read the result (=378) under the number 9. Set the '0' line on the bottom X scale under this result, and read the result (=1134) over the 3. Finally set the '0' line on the top X scale over the result, and read the complete result under the 2 (=2268).

Ex. D. $26:6.5=4$

Find 26 on the middle X scale, and locate 6.5 on the top X scale above the 26. Read the result (=4) under the '0' line of the top X scale.

Ex. E. $\frac{25\times5}{2,5}=50$

Multiplication is done as in the above examples, and then 2.5 on the bottom X scale is located under the intermediate result (=125), and the final result (=50) can be read above the '0' line.

Using the X^2 scale

Ex. 1a. $\sqrt[2]{9}=3$

Set the '0' line on the three bottom rings exactly above each other, then slide the '0' line on the middlemost of these three rings round and locate it above the number 9 on the bottom scale. Now you can read the result (=3) above the '0' line.

Ex. 1b. $6^2=5\times5=25$

This example is carried out in the same way as the preceding one, except that the '0' line is placed under the number 5 on the uppermost of the three rings, and the result (=25) is obtained on the bottom ring.

COPENHAGEN CREATIVE WORKSHOP INC.

Trommesalen 5 . 1614 Copenhagen, Denmark . phone (01) 31 64 64