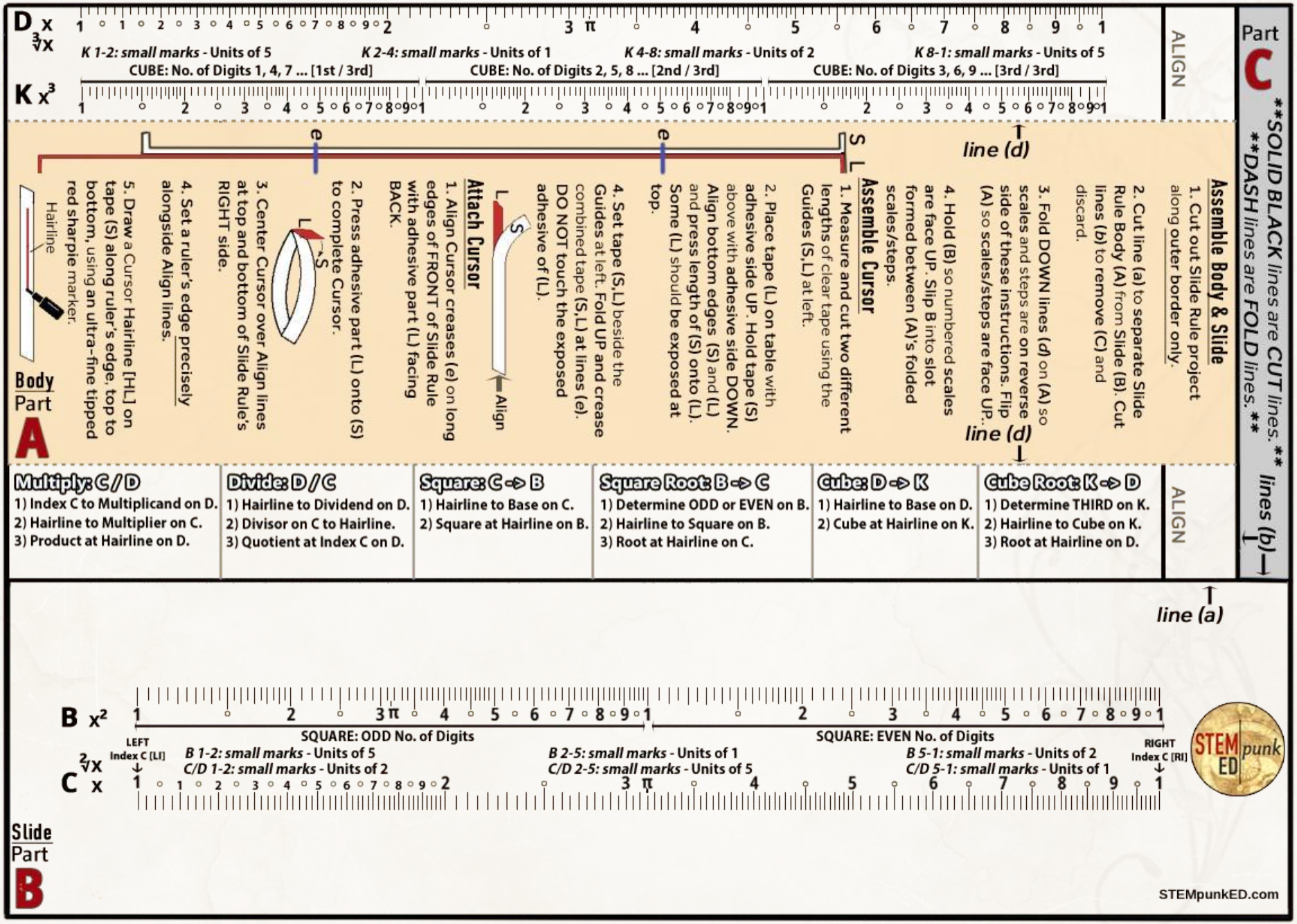
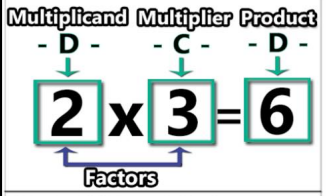
Oughtred's Slide Rule - 1622 CE



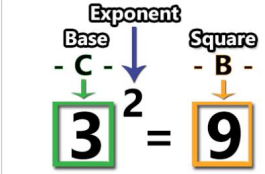
Based on a paper slide rule pubished in Scientific American Magazine in May, 2006

- MULTIPLY (C/D) -



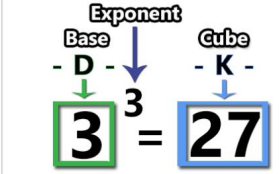
1) Index [L/R] C to Multiplicand on D.
2) Hairline [HL] to Multiplier on C.
3) Product at Hairline on D.

- SQUARE (C/B) -



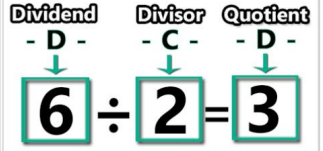
1) Hairline [HL] to Base on C.
2) Square at Hairline on B.

- CUBE (D/K) -



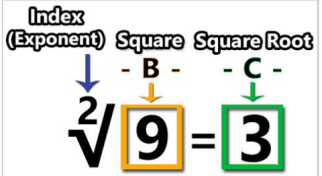
1) Hairline [HL] to Base on D.
2) Cube at Hairline on K.

- DIVIDE (D/C) -



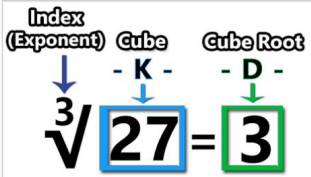
1) Hairline [HL] to Dividend on D.
2) Divisor on C to Hairline [HL].
3) Quotient at Index [L/R] C on D.

- SQUARE ROOT (K/D) -



1) Determine ODD or EVEN on B.
2) Hairline [HL] to Square on B.
3) Square Root at Hairline on C.

- CUBE ROOT (K/D) -



1) Determine THIRD on K.
2) Hairline [HL] to Cube on K.
3) Cube Root at Hairline on D.

When Slide Rules Ruled

Oughtred's Slide Rule 1622 CE

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Final Assembly

When you feel practiced with the Slide Rule, **cut out this 3-pane rectangle** and the **smaller one** below. **Glue the one below** to the **back of the completed Slide Rule,** taking care to place it **UNDERNEATH the Cursor**.

Placing a Decimal Using Place Number (PN)

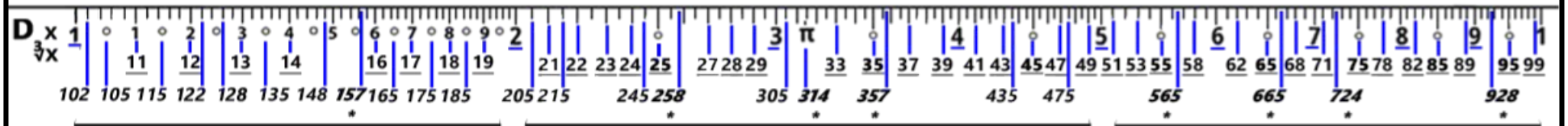
To **place the decimal** in the answer to an expression:

1. **Apply the *Using Place Number*** chart to **determine** the **+/0/- PN Value of each number in the expression** you are solving.

2. **Enter the PN Value(s) into the Decimal Place formula** matching the expression's operation (**x, ÷, x^x ,$\sqrt{x}$**).

3. **Solve the Decimal Place formula** and **use the result to place the decimal** in the expression's answer according to the ***Using Place Number*** chart.

- EXAMPLE OF READING A SCALE ON THIS SLIDE RULE TO 2 AND 3 SIG. DIGITS -



C/D 1-2: small marks - 3rd Sig. Digit - Units of 2

C/D 2-5: small marks - 3rd Sig. Digit - Units of 5

C/D 5-1: small marks - 3rd Sig. Digit - Units of 1

* = Interpolation (reading between the lines) to 3 Sig. Digits.

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Reading 3 Sig. Digits

Read: LEFT ⇨ RIGHT

Large No. mark: *1st Digit*

Medium mark: *2nd Digit*

Unnumbered medium marks

- Read as: ###

Slightly longer Half-marks

- Read as: #5#

Small mark: *3rd Digit*

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Using Place Number (PN)

Count No. of Whole Digits (+) PN

Count No. of Leading 0's (-) PN

320.00032

320 → +3 PN
32 → +2 PN
3.2 → +1 PN
0.32 → 0 PN
0.032 → -1 PN
0.0032 → -2 PN
0.00032 → -3 PN

Multiplication Decimal Pos.: C / D

Multiplicand PN + *Multiplier* PN = *Sum* PN

IF Cursor Moves RIGHT from Left Index when on D:

Sum PN - 1 = PN

Division Decimal Pos.: C / D

Dividend PN - *Divisor* PN = *Difference* PN

IF Reading Quotient from Left Index:

Difference PN + 1 = PN

Squares & Square Roots Decimal Pos.: C / B

Square with ODD PN -> Square Root: (PN + 1) ÷ 2

Square with EVEN PN -> Square Root: PN ÷ 2

Base -> Square on ODD B Scale: (PN x 2) - 1

Base -> Square on EVEN B Scale: PN x 2

Cubes & Cube Roots Decimal Pos.: K / D

Cube on 1st/3rd K Scale -> Cube Root: (PN + 2) ÷ 3

Cube on 2nd/3rd K Scale -> Cube Root: (PN + 1) ÷ 3

Cube on 3rd/3rd K Scale -> Cube Root: PN ÷ 3

Base -> Cube on 1st/3rd K Scale: (PN x 3) - 2

Base -> Cube on 2nd/3rd K Scale: (PN x 3) - 1

Base -> Cube on 3rd/3rd K Scale: PN x 3