

# Oughtred's Slide Rule - 1622 CE

**Part C**

**\*\*SOLID BLACK lines are CUT lines.\*\***

**\*\*DASH lines are FOLD lines.\*\***

**Assemble Body & Slide**

- Cut out Slide Rule project along outer border only.
- Cut line (a) to separate Slide Rule Body (A) from Slide (B). Cut lines (b) to remove (C) and discard.
- Fold **DOWN** lines (d) on (A) so scales and steps are on reverse side of these instructions. Flip (A) so scales/steps are face UP.
- Hold (B) so numbered scales are face UP. Slip B into slot formed between (A)'s folded scales/steps.

**Assemble Cursor**

- Measure and cut two different lengths of clear tape using the Guides (S,L) at left.
- Place tape (L) on table with adhesive side UP. Hold tape (S) above with adhesive side DOWN. Align bottom edges (S) and (L) and press length of (S) onto (L). Some (L) should be exposed at top.
- Set tape (S,L) beside the Guides at left. Fold UP and crease combined tape (S,L) at lines (e). DO NOT touch the exposed adhesive of (L).

**Attach Cursor**

- Align Cursor creases (e) on long edges of **FRONT** of Slide Rule with adhesive part (L) facing **BACK**.
- Press adhesive part (L) onto (S) to complete Cursor.
- Center Cursor over Align lines at top and bottom of Slide Rule's **RIGHT** side.
- Set a ruler's edge precisely alongside Align lines.
- Draw a Cursor Hairline [HL] on tape (S) along ruler's edge, top to bottom, using an ultra-fine tipped red sharpie marker.

**lines (b)**

**line (a)**

**line (d)**

**line (d)**

**Align**

**Align**

**Body Part A**

**Multiply G/D**

- Index C to Multiplicand on D.
- Hairline to Multiplier on C.
- Product at Hairline on D.

**Divides D/G**

- Hairline to Dividend on D.
- Divisor on C to Hairline.
- Quotient at Index C on D.

**Squares G to B**

- Hairline to Base on C.
- Square at Hairline on B.

**Square Roots B to G**

- Determine ODD or EVEN on B.
- Hairline to Square on B.
- Root at Hairline on C.

**Cubes D to K**

- Hairline to Base on D.
- Cube at Hairline on K.

**Cube Roots K to D**

- Determine THIRD on K.
- Hairline to Cube on K.
- Root at Hairline on D.

**Slide Part B**

**SQUARE: ODD No. of Digits**

**SQUARE: EVEN No. of Digits**

**LEFT** Index C (L)  $\downarrow$  **RIGHT** Index C (R)  $\downarrow$

**B 1-2: small marks - Units of 5**    **B 5-1: small marks - Units of 2**

**C/D 1-2: small marks - Units of 2**    **C/D 5-1: small marks - Units of 1**

**B 2-5: small marks - Units of 1**    **C/D 5-1: small marks - Units of 1**

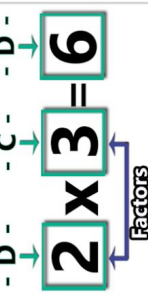
**C/D 2-5: small marks - Units of 5**

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**- MULTIPLY (C/D) -**

**Multiplicand Multiplier Product**



- 1) Index  $\frac{1}{2}$  C to Multiplicand on D.
- 2) Hairline [HL] to Multiplier on C.
- 3) Product at Hairline on D.

**- DIVIDE (D/C) -**

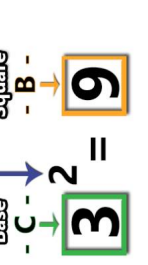
**Dividend Divisor Quotient**



- 1) Hairline [HL] to Dividend on D.
- 2) Divisor on C to Hairline [HL].
- 3) Quotient at Index  $\frac{1}{2}$  C on D.

**- SQUARE (C/B) -**

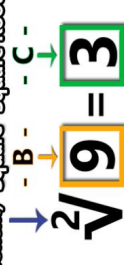
**Exponent Base Square**



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

**- SQUARE ROOT (K/D) -**

**Index (Exponent) Square Square Root**



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

**- CUBE (D/K) -**

**Exponent Base Cube**



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

**- CUBE ROOT (K/D) -**

**Index (Exponent) Cube Cube Root**



- 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



**Final Assembly**

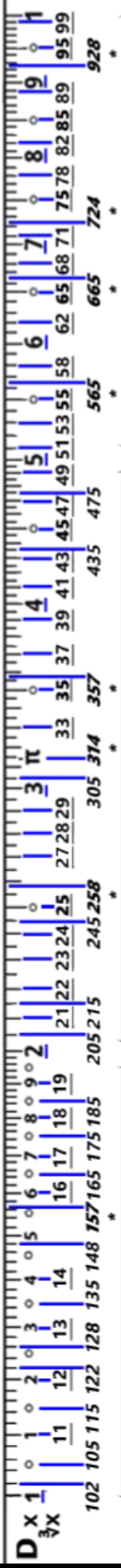
When you feel practiced with the Slide Rule, cut out this 3-pane rectangle and the smaller one below. Glue the one below to the back of the completed Slide Rule, taking care to place it UNDERNEATH the Cursor.

**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 ( $x, \div, x^x, \sqrt{x}$ ).
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. marks 1st Digit**

**Medium marks 2nd Digit**

Unnumbered medium marks

- Read as: ###

Slightly longer Half-marks

- Read as: #.5#

**Small marks 3rd Digit**

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**Multiplication Decimal Poss G/D**

Multiplicand Multiplier Sum

PN + PN = PN

IF Cursor Moves RIGHT from Left Index when on D:

Sum PN - 1 = PN

**Division Decimal Poss G/D**

Dividend Divisor Difference

PN - PN = PN

IF Reading Quotient from Left Index:

Difference PN + 1 = PN

**Squares & Square Roots Decimal Poss G/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 Poss 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