Engineering Drawing & CAD

Lecture 02

by

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SCALES

SCALES:

A scale is defined as the ratio of the linear dimensions of element of the object as represented in a drawing to the actual dimensions of the same element of the object itself [x (represented): y (actual)]

a. Reducing Scales

- **For objects drawn smaller than their actual size**

1:2, 1:2.5, 1:5, 1:10, 1:25

b. Enlarging Scales

- **For objects drawn larger than their actual size**

2:1, 2.5:1, 5:1

2. Representative Fraction (R.F.)

- The ratio of the length of the drawing to the actual length of the object represented
- Represented in the form of X : Y
- X is the unit on the drawing whereas Y is the representation on the actual object.
- A scale of 1:2 means 1 unit of length on the drawing representing 2 units of length of the object.
- A scale of 2:1 means 2 units of length on the drawing representing 1 unit of length of the object.

3. TYPES OF SCALES

a. Metric Scales

- Based on the decimal system
- Reducing scales usually used are:

  1:2, 1:2.5, 1:5, 1:10, 1:20, 1:25, 1:50, 1:100, 1:200, 1:250 etc.
- Enlarging scales usually used are:

  2:1, 2.5:1, 5:1, 10:1, 20:1, 25:1, 50:1, 100:1, 200:1, 250:1 etc.

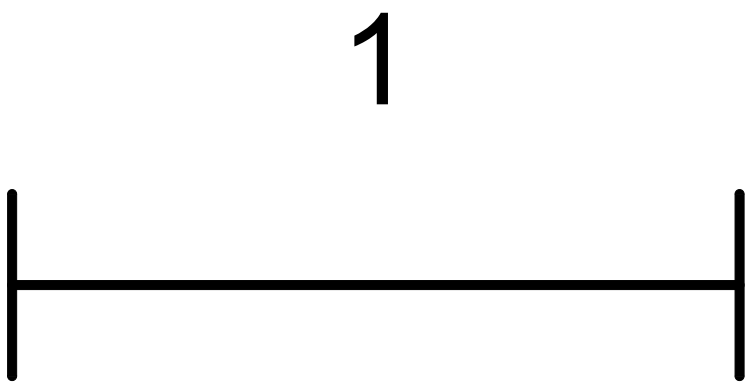
b. Inch-Foot (English) Scales

- Based on decimal and fraction system
- Reducing and Enlarging scales have similar R.F. to Metric scales in the decimal system.
- Fraction system has R.Fs of the type

  1:2, 1:3, 1:4, 1:6, 1:12 etc. or vice versa.

4. INCH DIVISIONS

a. Fractions (8^{th}s)



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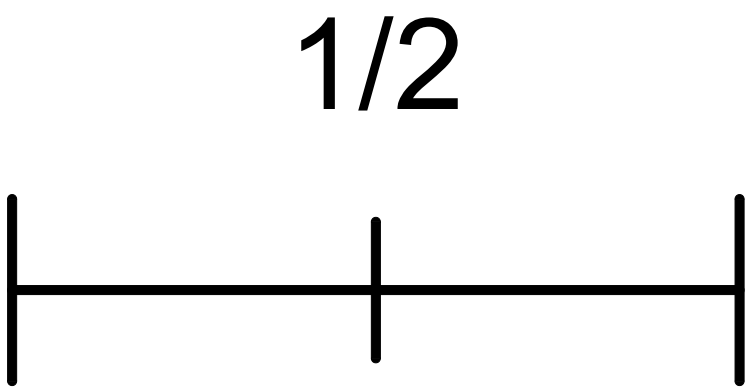

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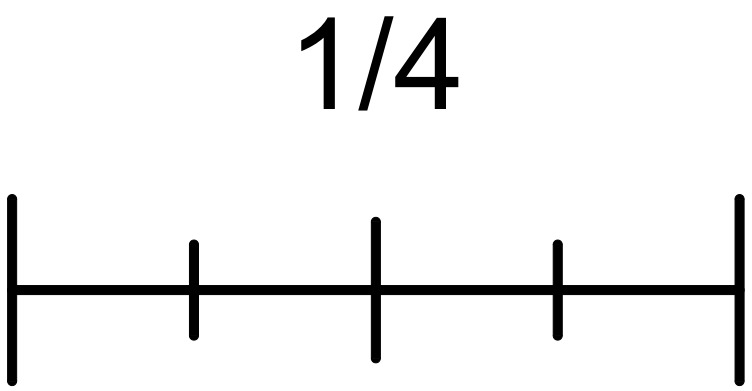

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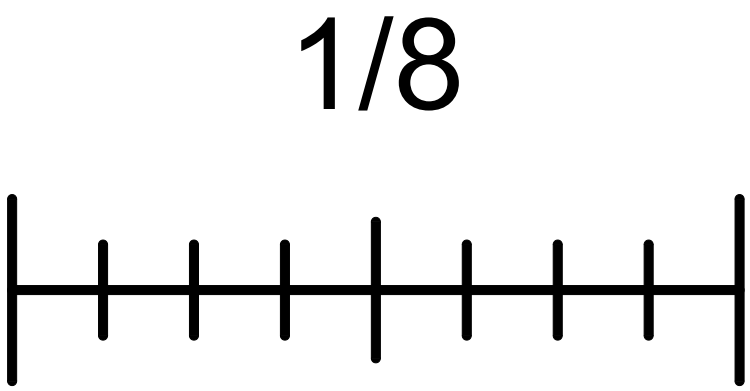
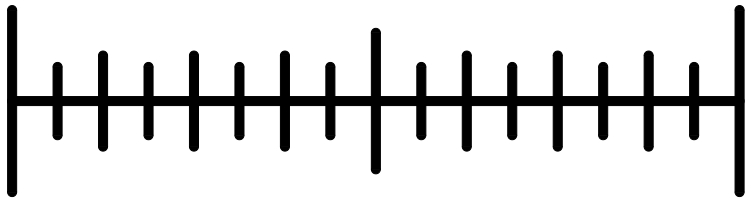


4. INCH DIVISIONS

a. Fractions (8ths)

1/16



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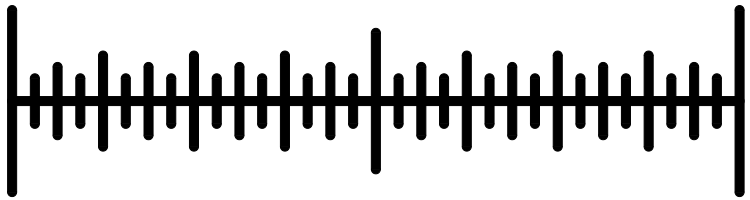
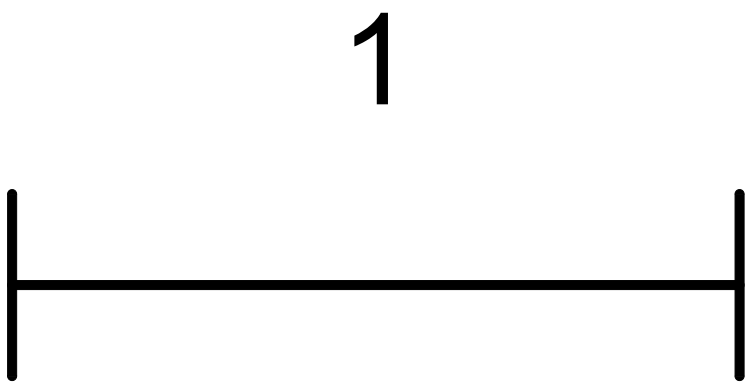
1/32



b. Decimal (10^{th}s)



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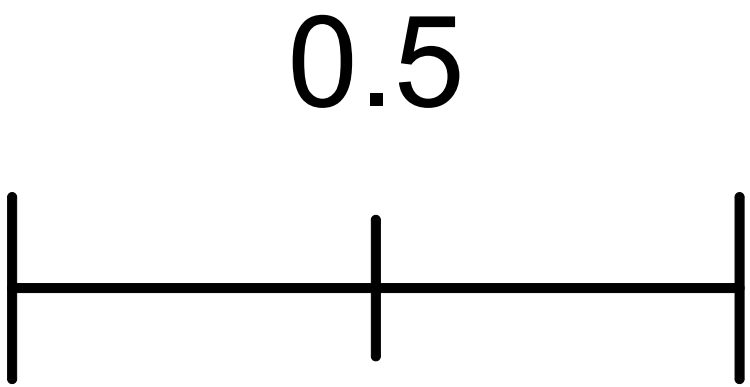

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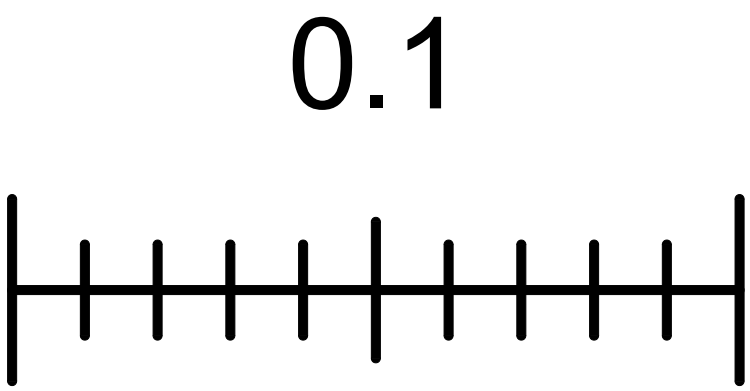

5. DIAGONAL SCALES

a. Decimal Based Diagonal Scale

- **To measure dimensions in 1/100th of an inch.**
- **Principle of diagonal Scale Page 55** N.D Butt 50th Edition

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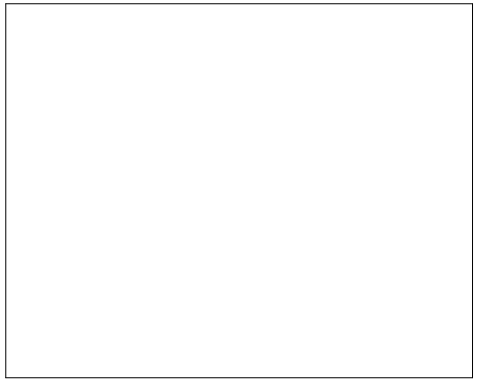

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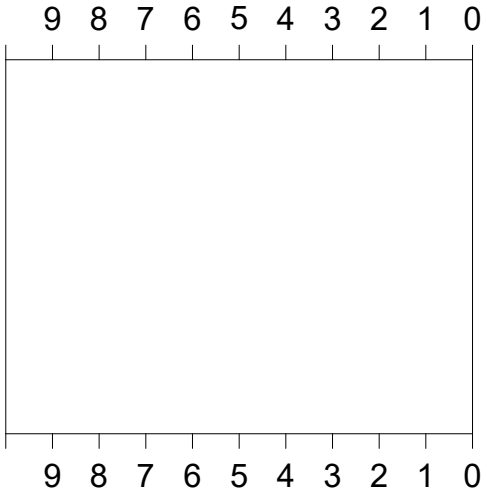

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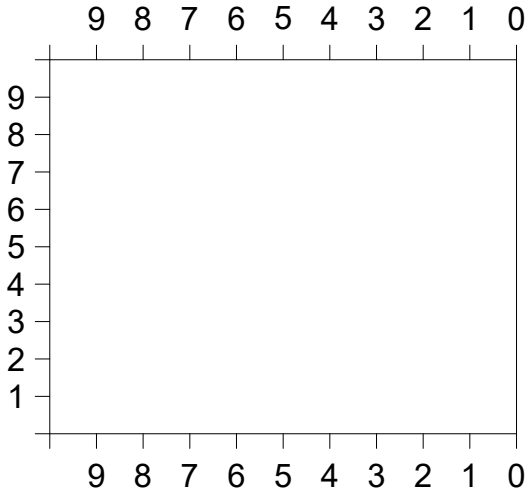

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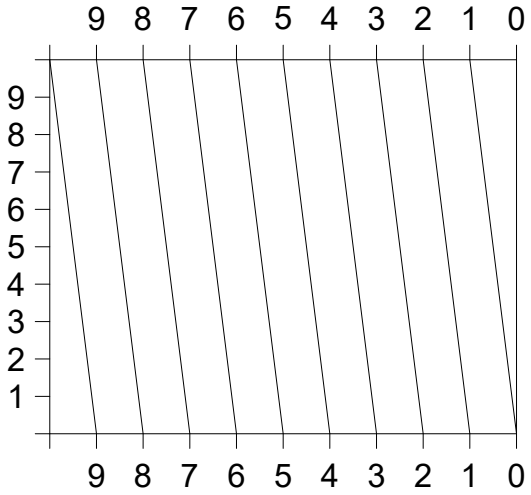

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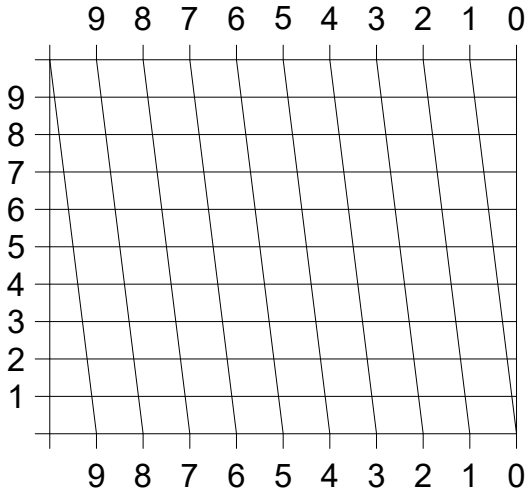

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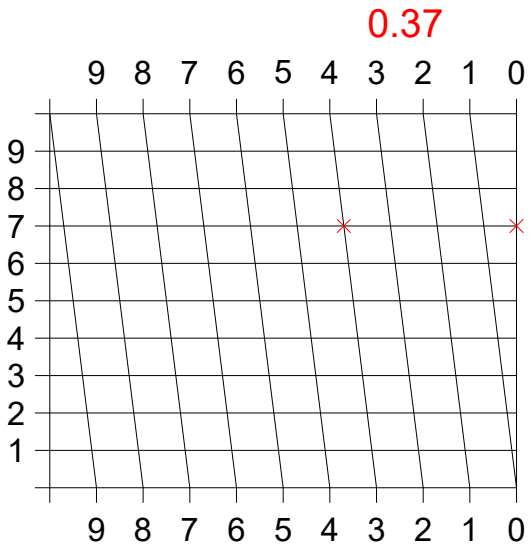

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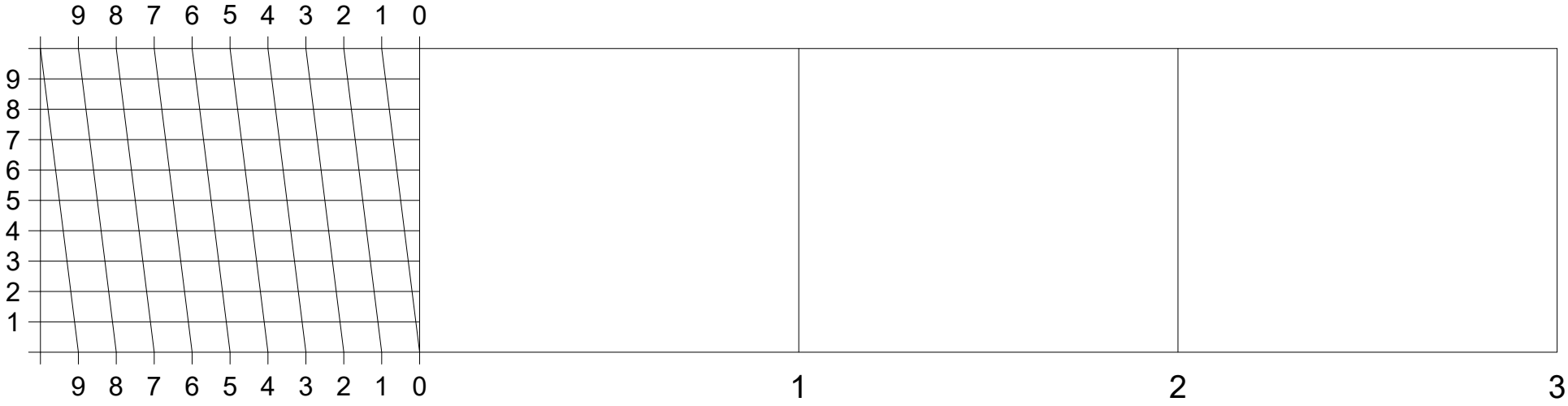

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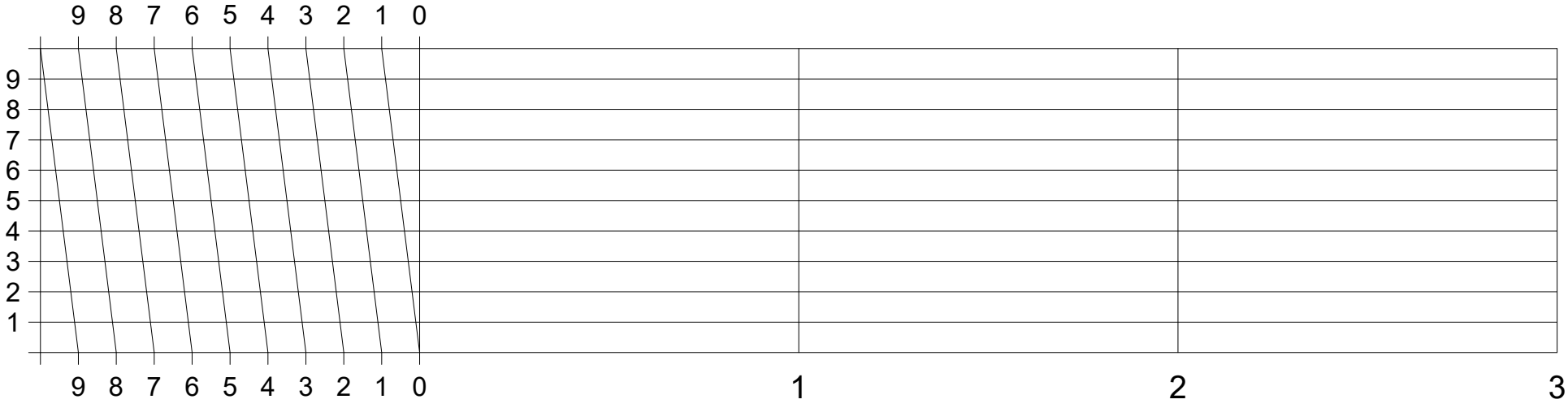

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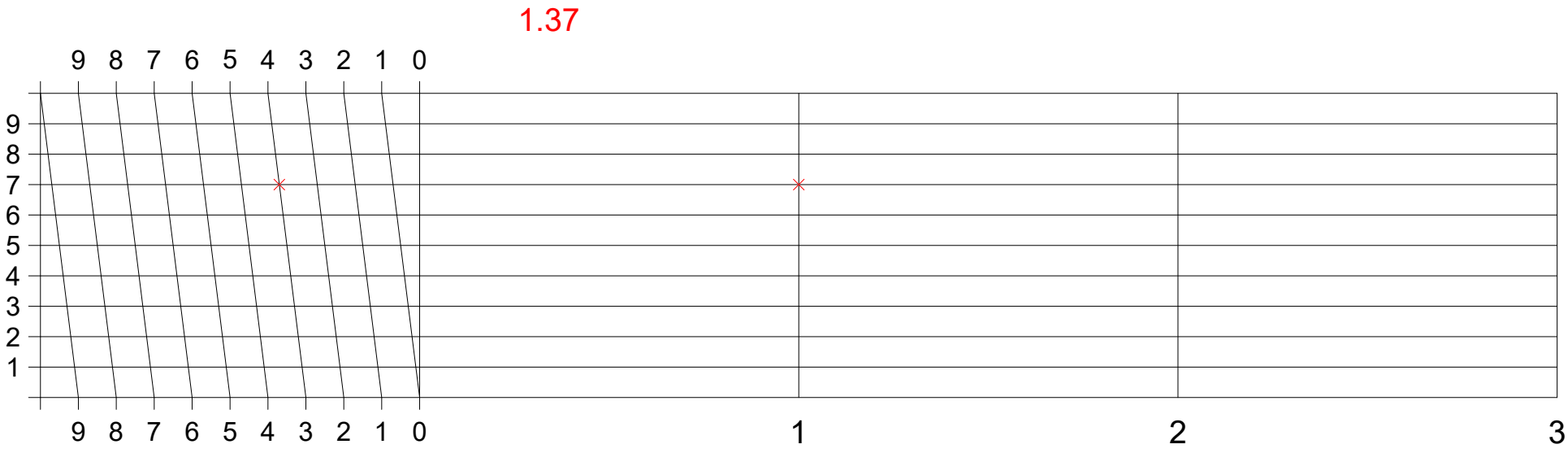

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