

Fig. 7.

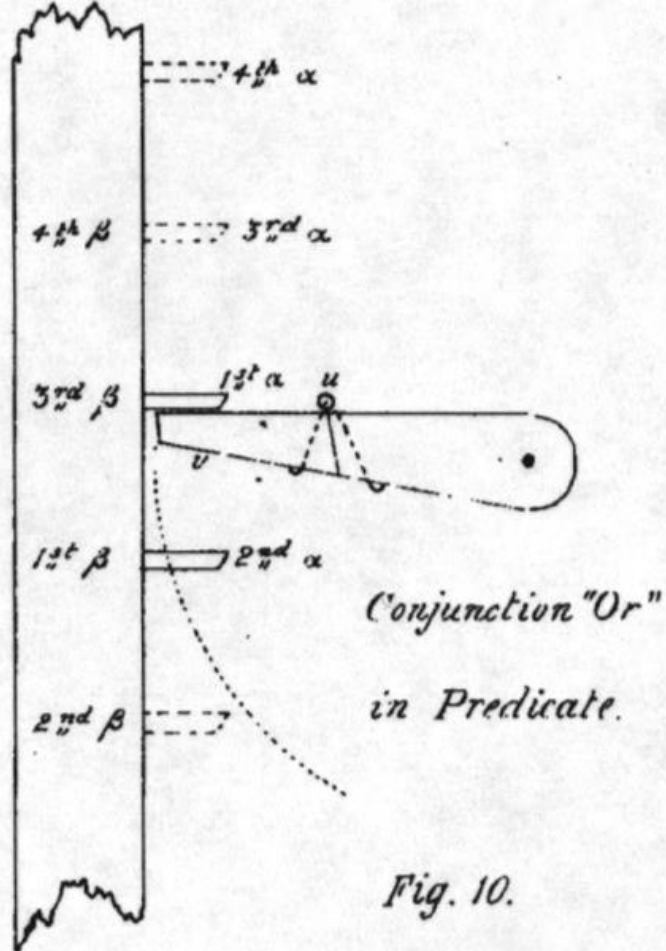
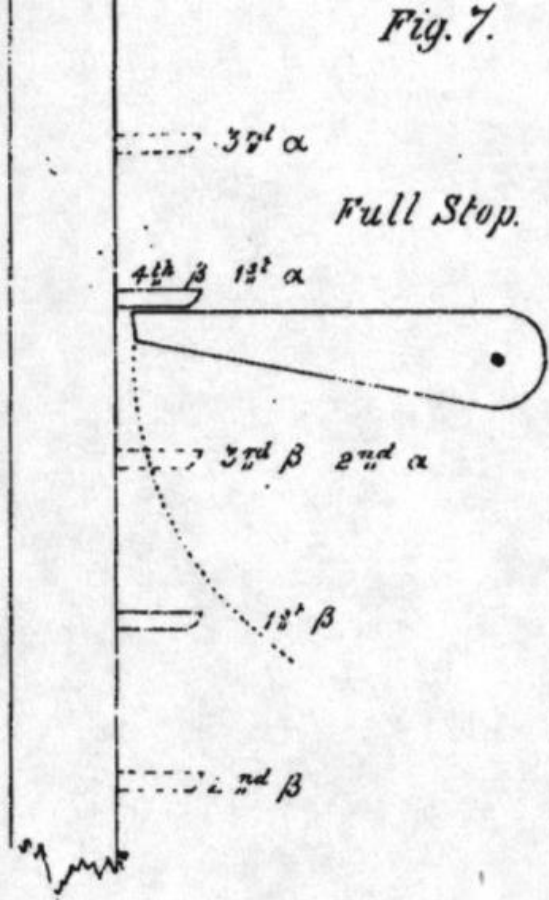


Fig. 10.

Fig. 12.

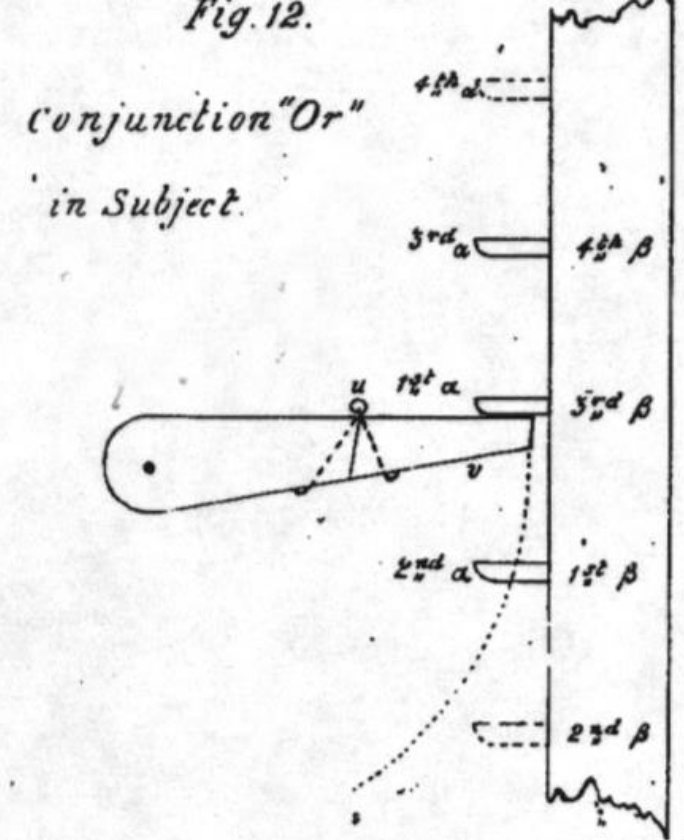


Image taken from W. S. Jevons (1869)

LOGICAL MACHINE

Kenny
Jasmine
Kunn Binn



George Boole

Formulated
Boolean Algebra

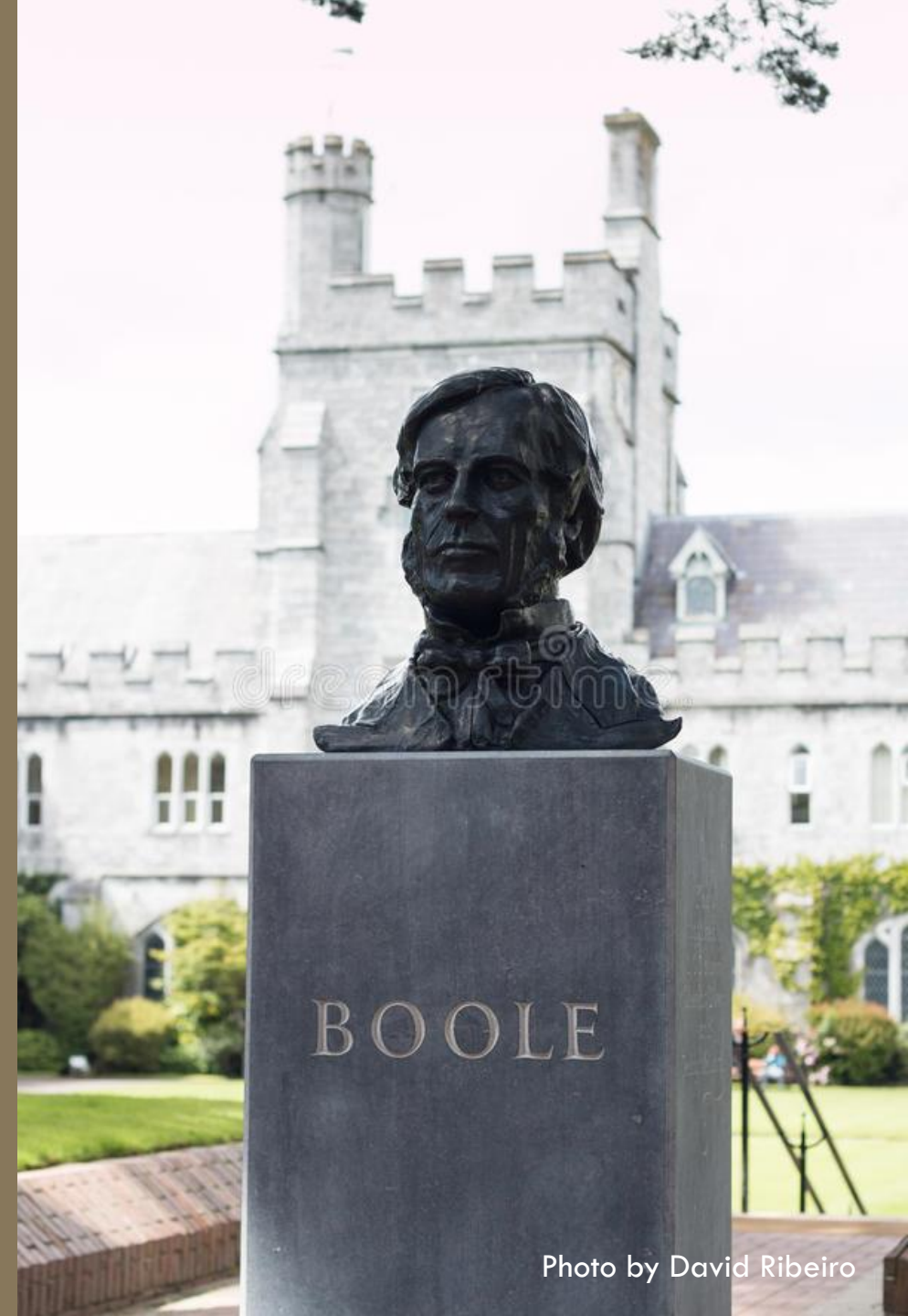
Based in Cork

CAN ANYONE RECOGNIZE WHO
THIS IS?

BOOLEAN ALGEBRA

Building blocks behind the workings of a computer

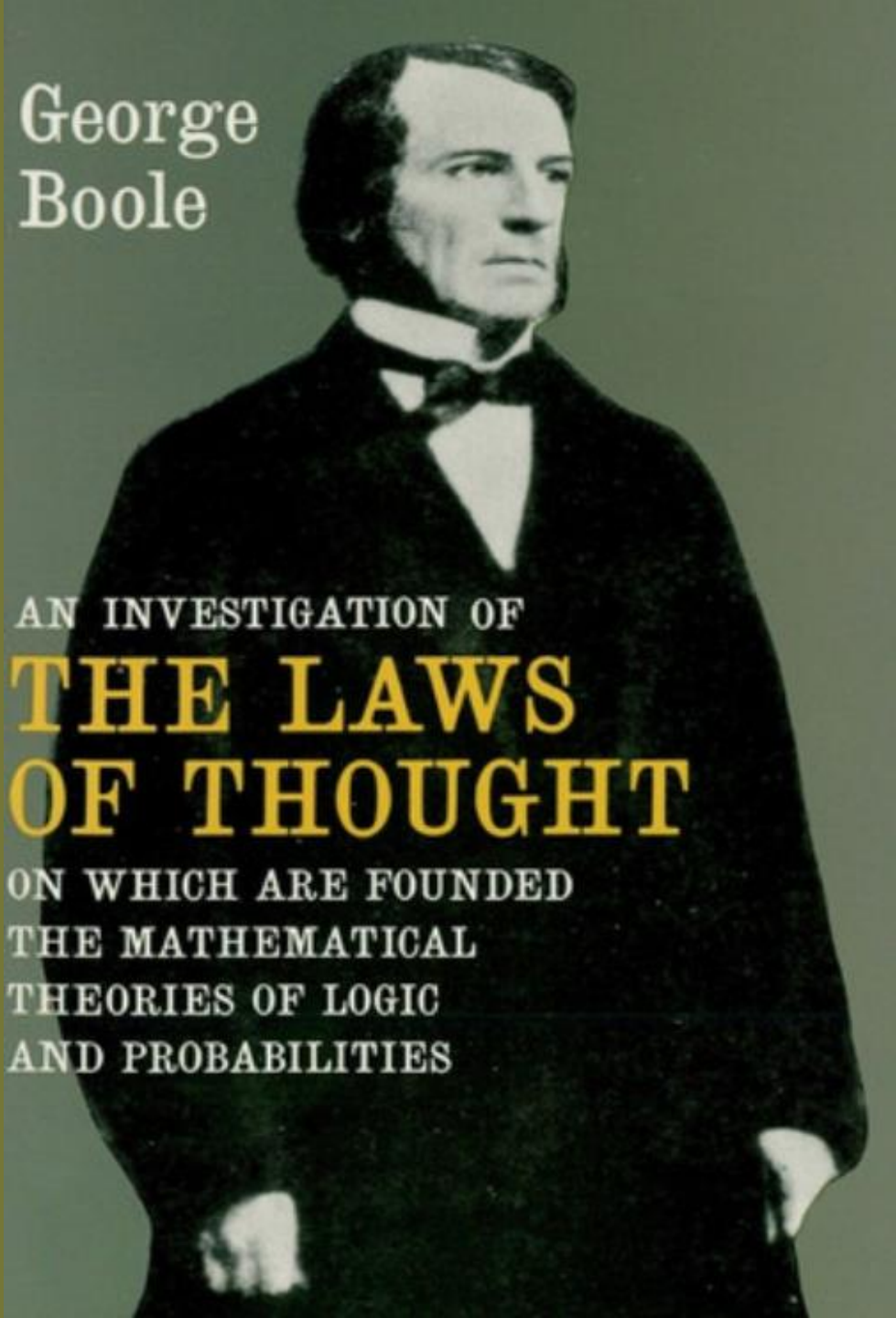
Consist of two variables: TRUE or FALSE which can be denoted as 0 and 1 respectively



LOGIC

Logic represents the systematic study of the form of argument and deductive reasoning.

George
Boole

A black and white portrait of George Boole, a middle-aged man with dark hair, wearing a dark suit and a white shirt with a dark bow tie. He is looking slightly to the right.

AN INVESTIGATION OF
**THE LAWS
OF THOUGHT**
ON WHICH ARE FOUNDED
THE MATHEMATICAL
THEORIES OF LOGIC
AND PROBABILITIES

EX1. WHO CAN WE INVITE TO THE PARTY?

You have three friends: Claire, Daniel, and Eric, whom you would like to invite to your party. You can invite people according to the following rules:

1. If you invite Eric, you must invite Claire.
2. If you don't invite Daniel, you must invite both Claire and Eric.
3. You must invite either Claire or Eric, but not both.

Use your truth table to see who you can invite.

TRUTH TABLE

	Claire	Daniel	Eric
1	0	0	0
2	0	0	1
3	0	1	0
4	0	1	1
5	1	0	0
6	1	0	1
7	1	1	0
8	1	1	1

1 = invite, 0 = do not invite

1. If you invite Eric, you must invite Claire.

	Claire	Daniel	Eric	
1	0	0	0	Keep
2	0	0	1	Discard
3	0	1	0	Keep
4	0	1	1	Discard
5	1	0	0	Keep
6	1	0	1	Keep
7	1	1	0	Keep
8	1	1	1	Keep

1 = invite, 0 = do not invite

EX2. WHO IS WATCHING TV?

Abner, his wife Beryl and their three children, Cleo, Dale and Ellsworth.

1. If Abner is watching television, so is his wife.
2. Either Dale or Ellsworth, or both of them, are watching television.
3. Either Beryl or Cleo, but not both, is watching television.
4. Dale and Cleo are either both watching television or both not watching television.
5. If Ellsworth is watching television, then Abner and Dale are also watching.

Who is watching television?

Obtained from Gardner (1969, p.20)

Martin 12345678910
Gardner's 123456789
New 123456789101112
Mathematical 1234
Diversions 12345678
from 123456789101112
SCIENTIFIC 123456789
AMERICAN 123456789

From Binary magic to Topological games
and the infinite pleasures of Pi

REFERENCE

Boole, G. (1854). *An Investigation of The Law of Thought*. Open Court.

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Jevons, W. S. (1870). XXII. On the mechanical performance of logical inference. *Philosophical Transaction of the Royal Society London*, 160, 497-518.

Priss, U. (n.d.). *Logical puzzle*. Retrieved from Uta Priss:
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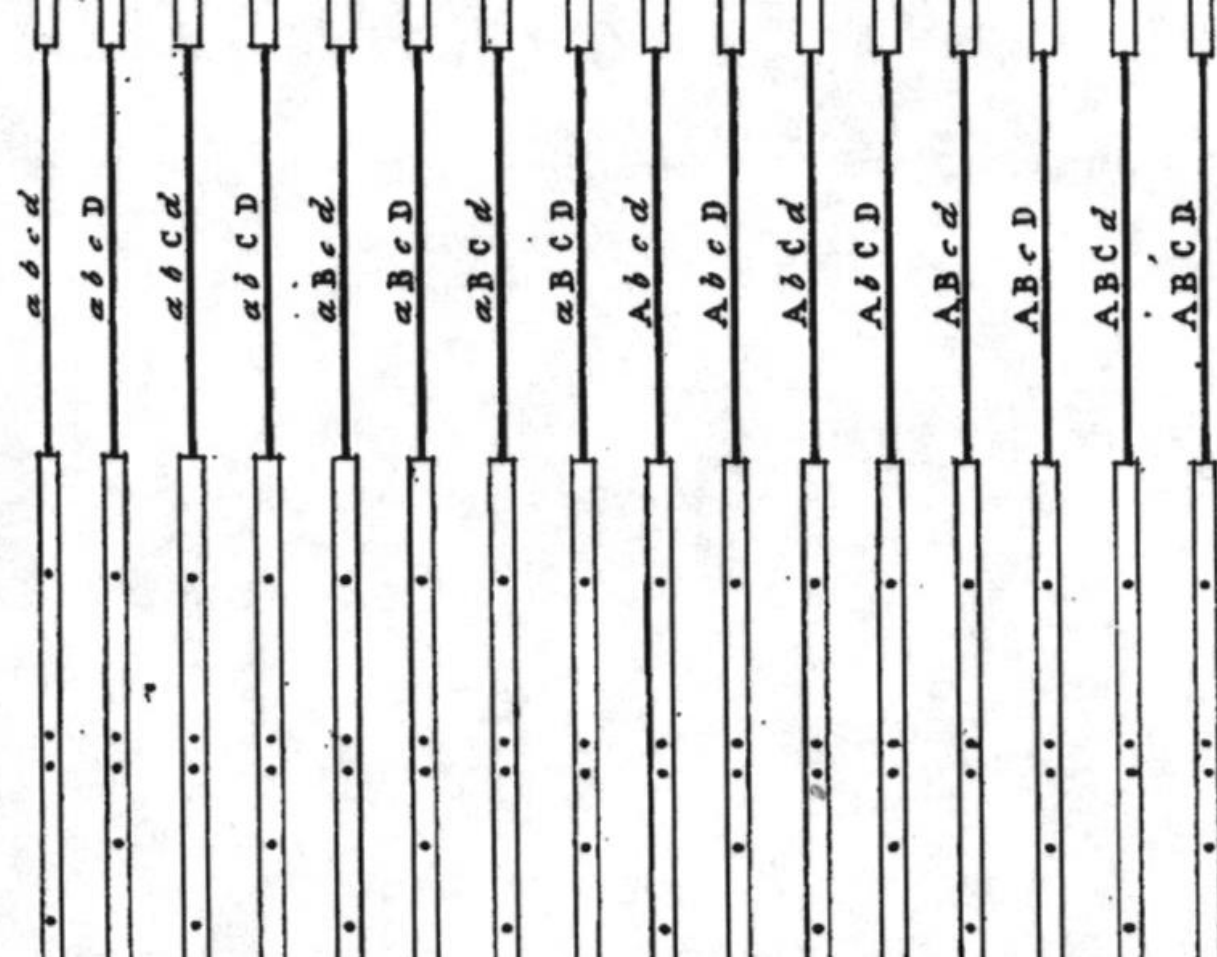


Fig. 1.

Finis.

{Conjunction
"Or" (Predicative),
d Subject
D "

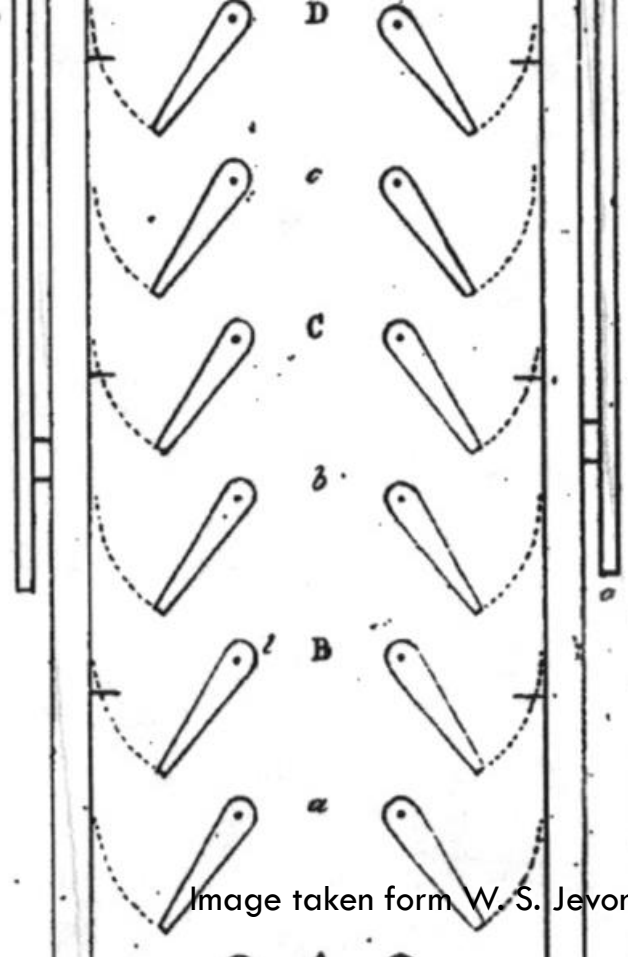


Image taken from W. S. Jevons (1869)

EXTRA MATERIALS

SIMILAR TRIANGLES

“

1. Triangles whose corresponding angles are equal have their corresponding sides proportional, and vice versa.

2. Similar figures consist of all whose corresponding angles are equal, and whose corresponding sides are proportional.

”

AN INVESTIGATION
OF
THE LAWS OF THOUGHT,
ON WHICH ARE FOUNDED
THE MATHEMATICAL THEORIES OF LOGIC
AND PROBABILITIES.

BY
GEORGE BOOLE, LL.D.
PROFESSOR OF MATHEMATICS IN QUEEN'S COLLEGE, CORK.

LONDON:
WALTON AND MABERLY,
UPPER GOWER-STREET, AND IVY-LANE, PATERNOSTER-ROW.
CAMBRIDGE: MACMILLAN AND CO.

1854.
Courtesy of Bloomsbury Auctions

EX. SIMILAR TRIANGLES

“

To represent these premises, let us make

s = similar.

t = triangles.

q = having corresponding angles equal.

r = having corresponding sides proportional.

”

Obtain form Boole (1854, p.96)

AN INVESTIGATION
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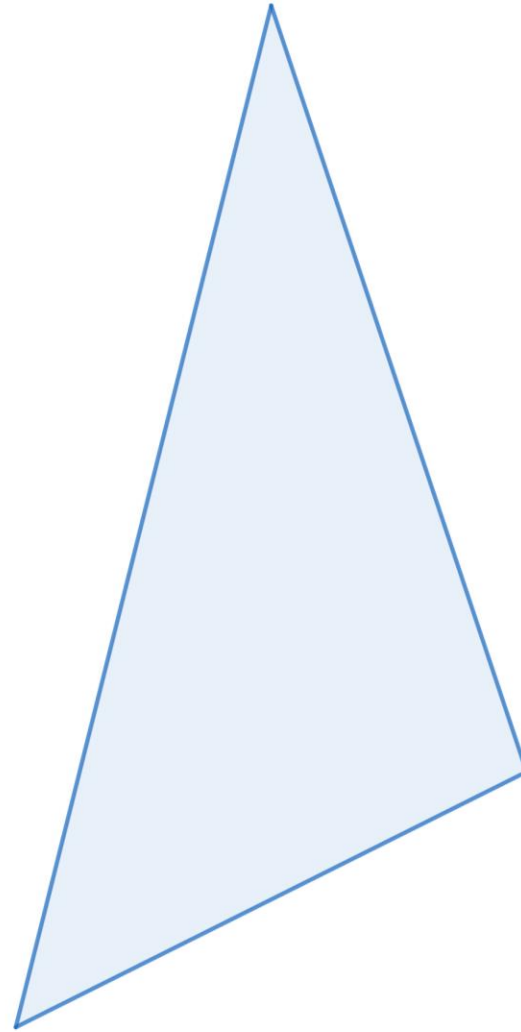
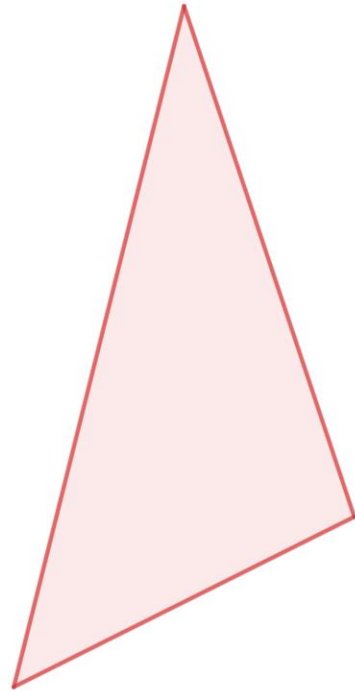
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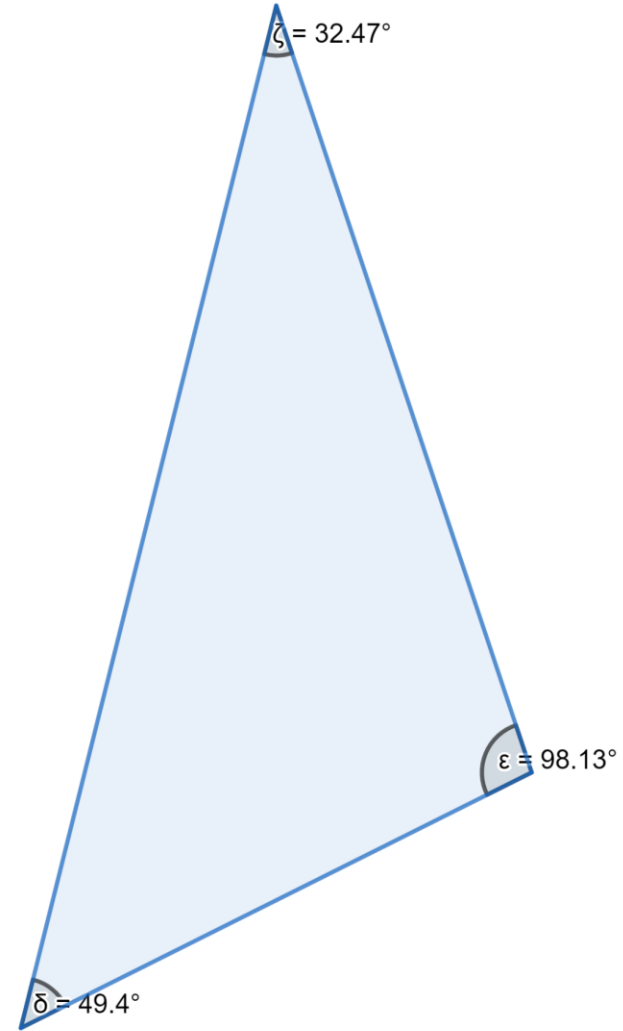
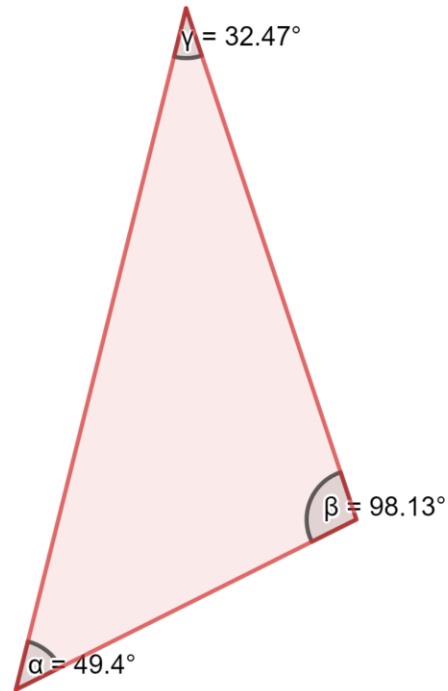
LONDON:
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1854.
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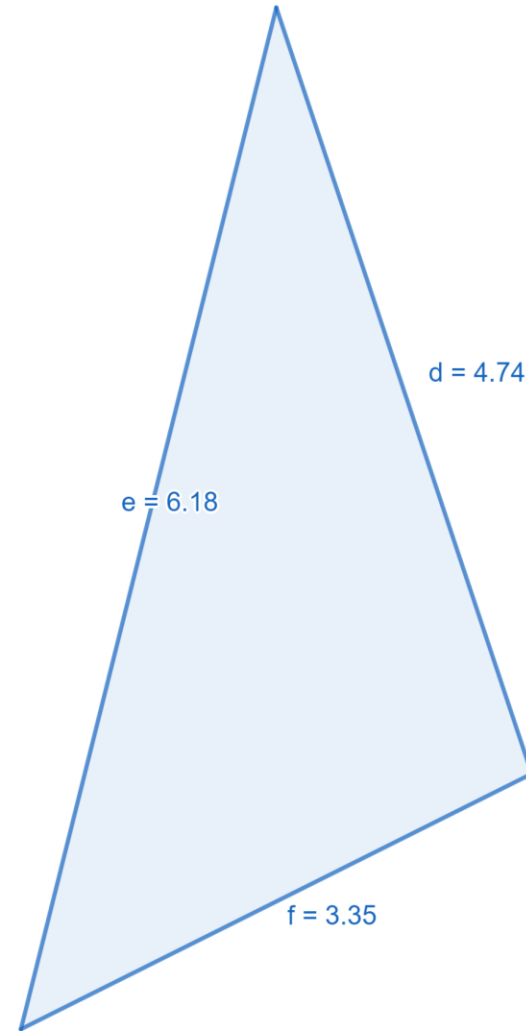
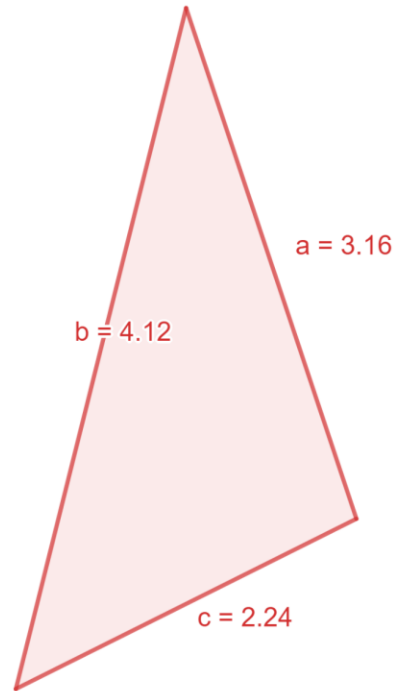
1. Triangles ...



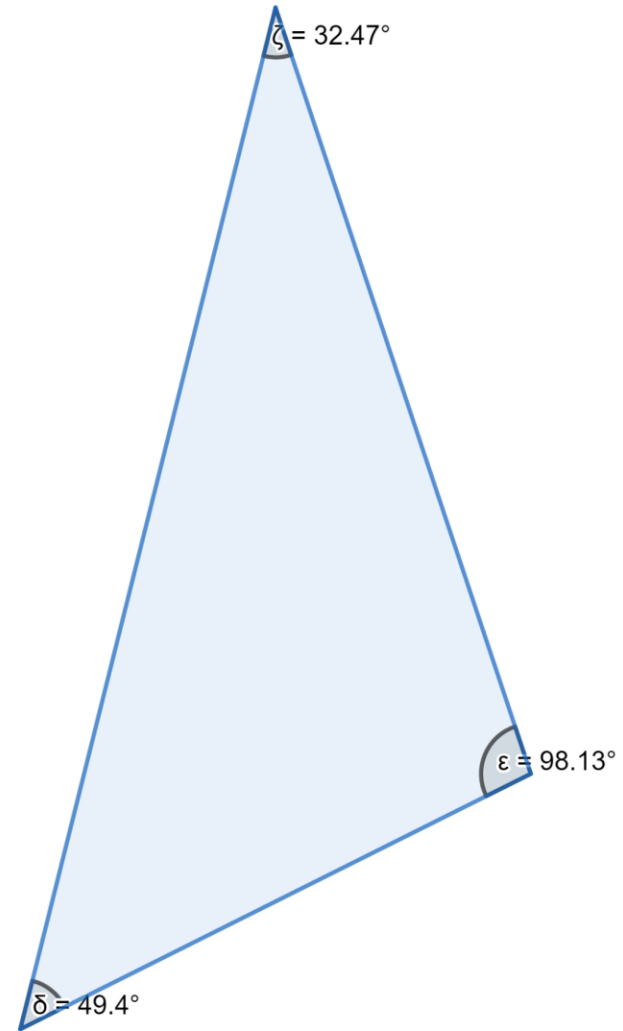
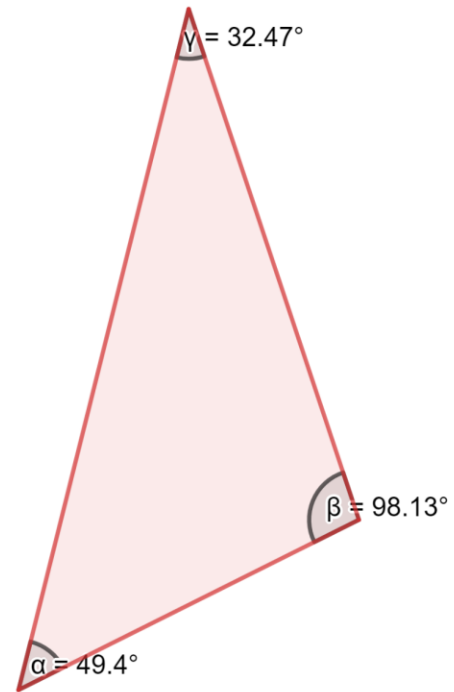
... whose corresponding angles are equal ...



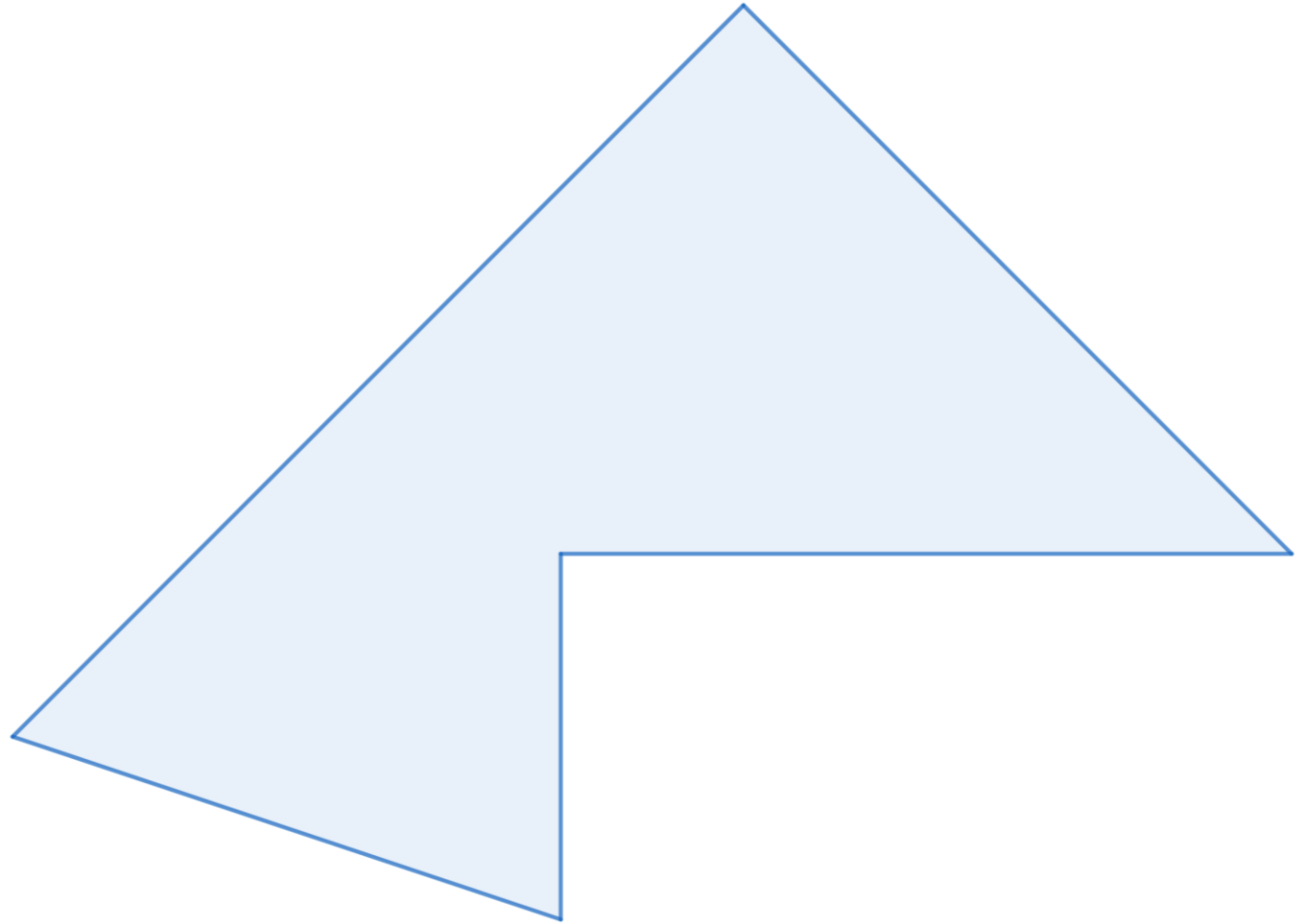
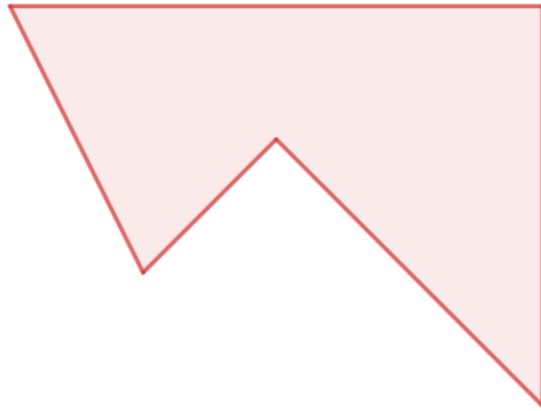
... have their corresponding sides proportional, ...



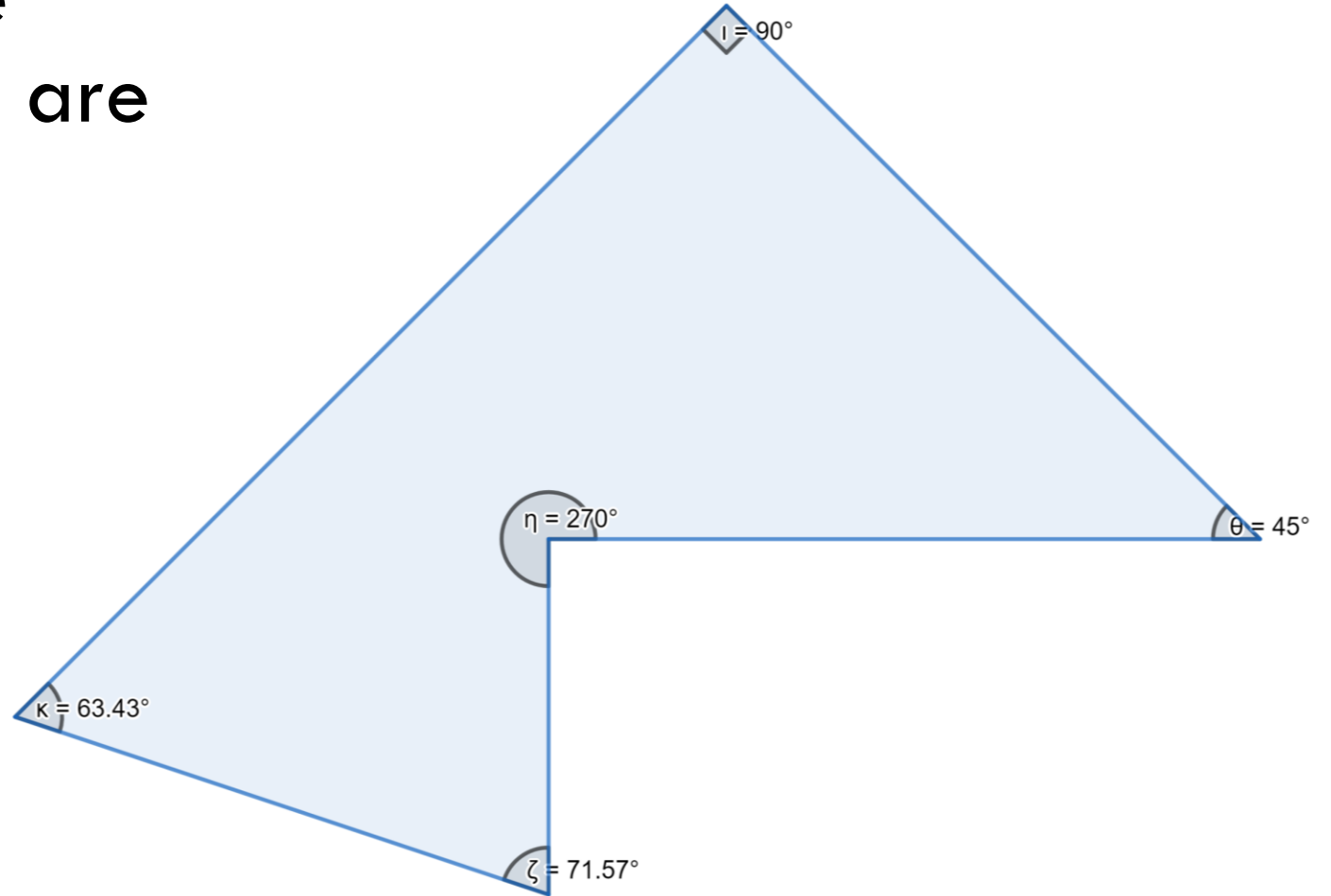
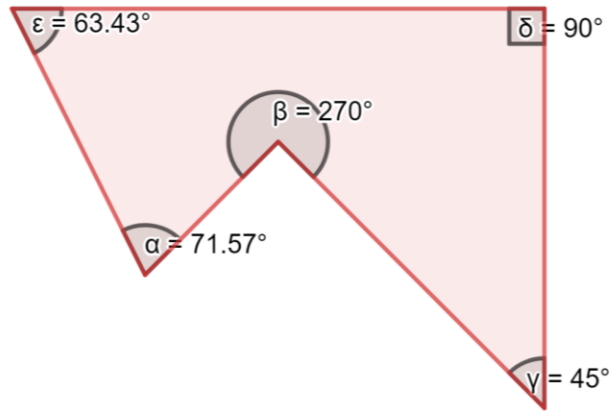
... and vice versa.



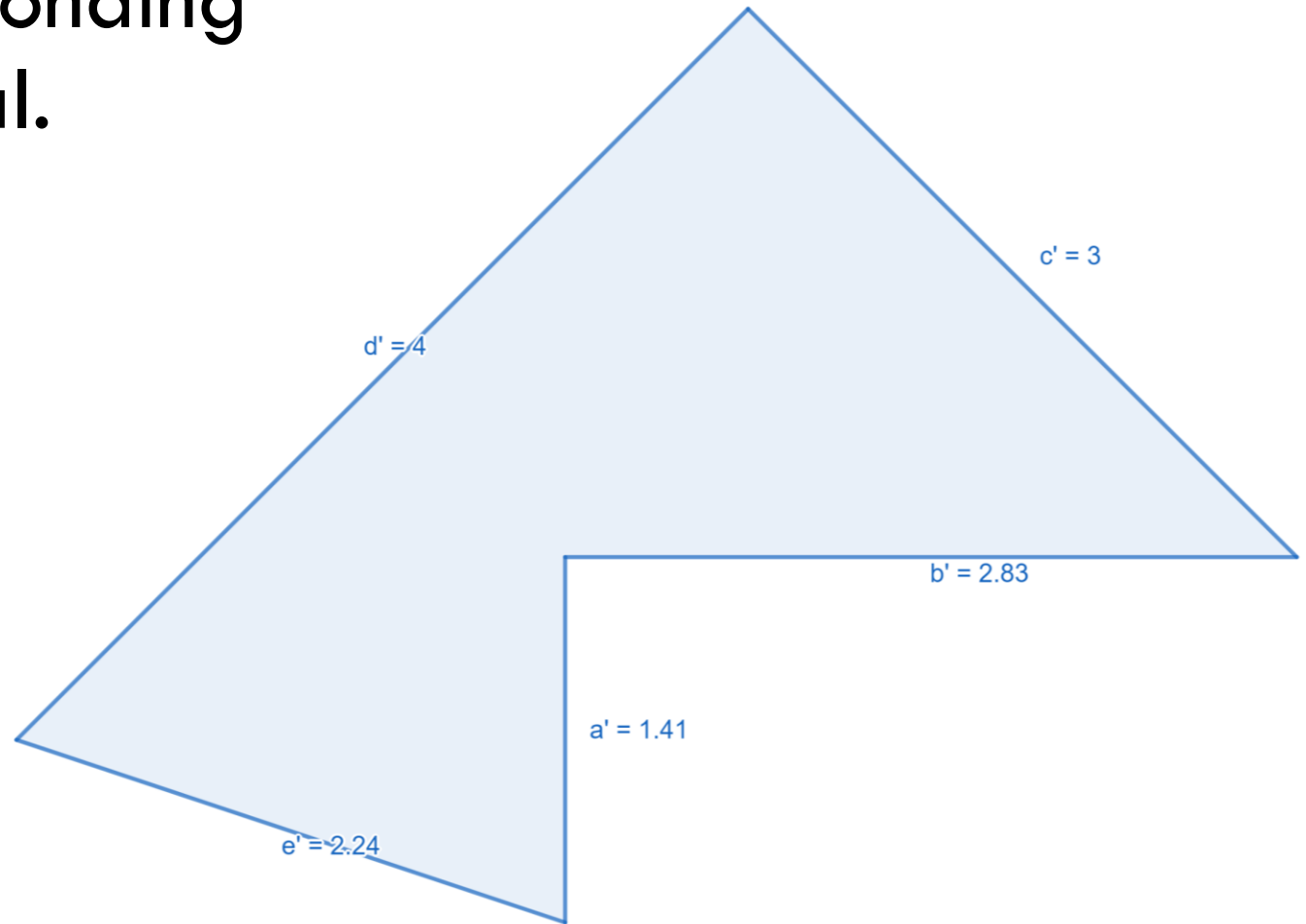
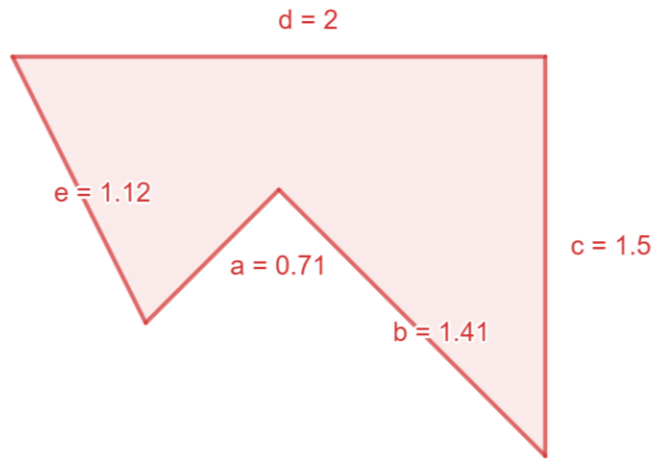
2. Similar figures ...



... consist of all whose
corresponding angles are
equal, ...



... and whose corresponding sides are proportional.



Q: WHICH STATEMENT IS TRUE?

- A.** Triangles, whose either corresponding sides are proportional, or corresponding angles are equal, but not both, are similar triangles.
- B.** Dissimilar triangles, whose corresponding angles are equal, have corresponding sides disproportional.
- C.** Figures whose corresponding sides are proportional and whose corresponding angles are equal, but not triangles, are similar.
- D.** Non-triangular, dissimilar figures, could have corresponding sides proportional, and corresponding angles equal.