

**MEI**  
Conference  
**2018**

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@MEIConference

#MEIConf2018

Introduce yourself to someone new.  
Find out why they chose this session.

# New perspectives on teaching constructions

Constructions is a KS3 and KS4 topic that raises challenges for teachers and students; it requires both skill with using equipment and a knowledge of geometric facts, which may rarely be mentioned at other times. However, it is also a topic that is full of potential for creative problem solving, mathematical reasoning and historical enrichment. This will be a hands-on session, providing new ideas for the classroom.

Sort the cards in to three groups:

- Possible constructions that are required at GCSE.
- Possible construction that are not.
- Impossible constructions.

# GCSE constructions

Construct a perpendicular from a point on a line.

Construct the perpendicular bisector of a segment.

Construct a perpendicular from a point to a line.

Bisect an angle.

Also, constructing a  $60^\circ$  angle.

# Impossible constructions

Trisect an angle.

Construct a square with the same  
area as a given circle.



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# Non-GCSE constructions



# Constructible numbers

Given lines of lengths of 1,  $a$  and  $b$  construct:

$$a + b$$

$$b - a$$

# Constructible numbers

Given lines of lengths of 1, a and b construct:

$$a + b$$

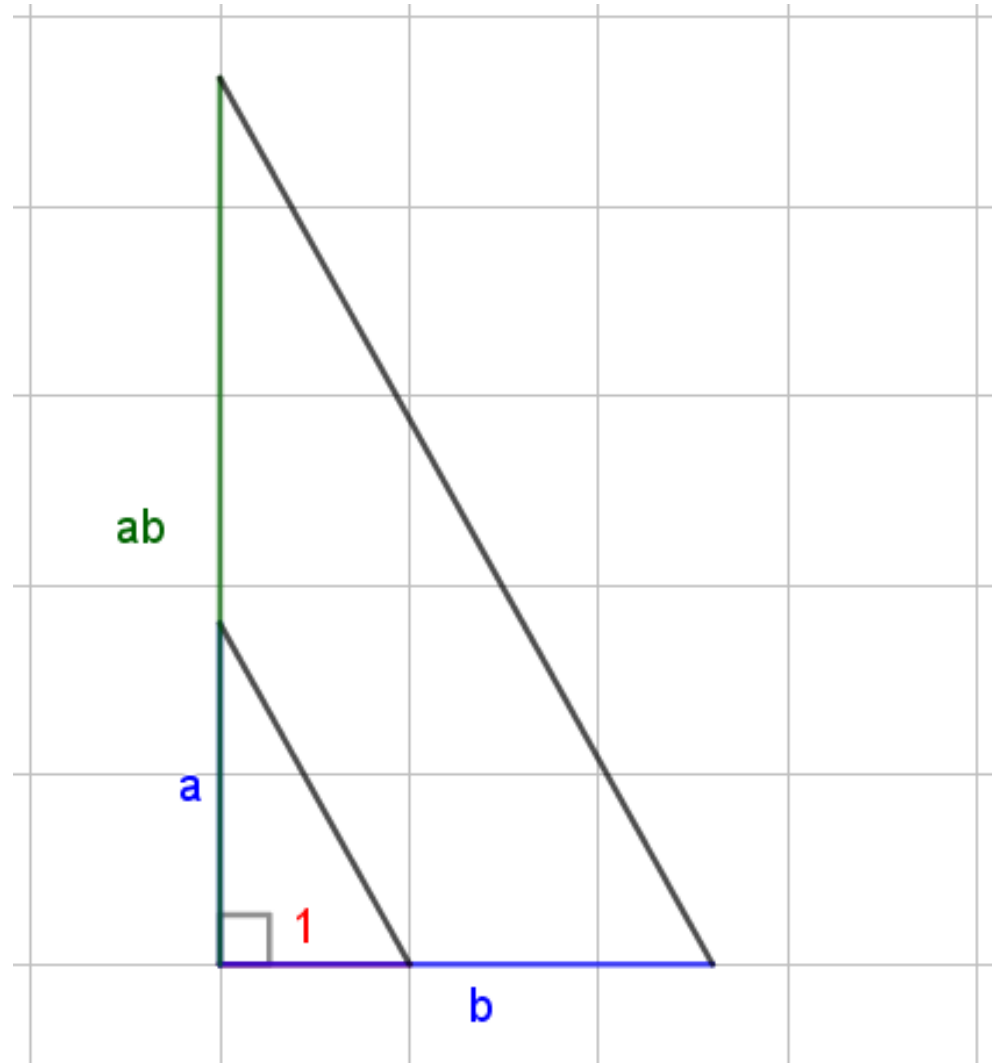
$$b - a$$

$$ab$$

$$\sqrt{a}$$

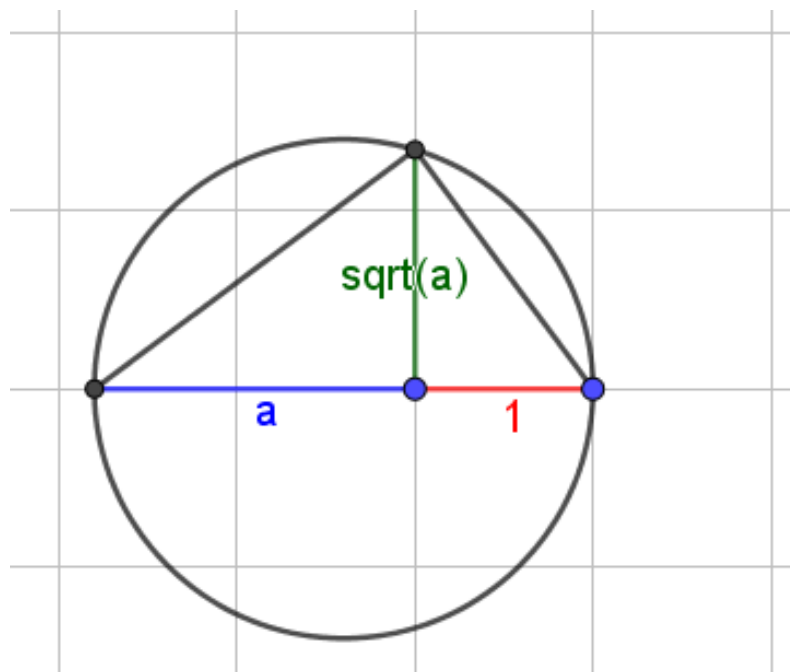
# Constructible numbers

ab



# Constructible numbers

$\sqrt{a}$



# Unmarked protractors

This protractor is marked at  $30^\circ$ .

What different size angles can you mark with it?

What is the least number of marks needed to draw any (multiple of  $10^\circ$ ) angle?

# About MEI

- Registered charity committed to improving mathematics education
- Independent UK curriculum development body
- We offer continuing professional development courses, provide specialist tuition for students and work with employers to enhance mathematical skills in the workplace
- We also pioneer the development of innovative teaching and learning resources