## **Job Interview** http://www.5minuteenglish.com/mar26.htm

*Listen to the interview and decide whether the statements are true or false.*

1. Carey was a boss at *Computer Country. T/F*
2. Carey knew how many computers were in her store. *T/F*
3. Carey liked taking care of angry customers. *T/F*
4. Carey's husband has a new job in a new city. *T/F*
5. Carey would be able to start her new job next week. *T/F*
6. Carey would like to work at Ms. Ballard's company. *T/F*
7. Ms. Ballard's company isn't liked by many people. *T/F*

*Which questions did Ms Ballard ask? Write down the questions.*

1……………………………………………………………………..

2. …………………………………………………………………….

3. …………………………………………………………………….

4. ……………………………………………………………………

5. ……………………………………………………………………

6. …………………………………………………………………….

## Questions and answers

**Try to identify the questions you are most likely to be asked in each of the following areas.**

| ***Area*** | ***Questions*** |
|---|---|
| Education | |
| Skills | |
| Achievements | |
| Personality | |
| „Oh no!" questions | |

*Practising mock interviews*

**<u>Interviewee:</u> Complete the following sentences so that they are true for you.**

I think I am quite ………………………………………..

I am not at all ……………………………………………

I am sometimes………………………………………….

I tend to be rather ………………………………………….

People say I am ……………………………………………

I can't stand people who are ………………………………

**<u>Interviewer:</u>**

**See an example of the interviewer's notes below. Complete the personal qualities of particular candidates.**

<u>Sarah:</u> I liked her because she seemed very friendly and positive, she smiled a lot during the interview. The only problem was that she found it difficult to make up her mind when I asked her about different situations she could face.

*cheerful ………………*

<u>Juan:</u> At first I thought what a nice man – seemed very intelligent but then when I asked him why he had left his last job and if he had any problems he got quite angry. We can't have someone who can't take criticism.

…………………….   …………………..

<u>Maria:</u> Very practical and down to earth and no silly answers to my questions. Very honest in her answers and genuinely seems to like her work.

.................................   …………………….

<u>Laura</u>: No, she seemed to think we should be begging her to join us … a big ego! I did not like the way she kept looking at herself in the mirror either!

...........................   ……………………….

<u>Jim:</u> I think he'd be a problem because he wants to be in charge all the time- do everything his way. And he admitted that he thinks it's a good idea to tell colleagues their bad points so that they can "learn"!

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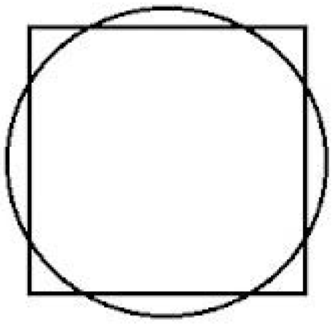
*Adapter from Hana Němcová and New Cutting Edge, Sourcebook, Pearson Education Ltd 2006.*

# Squaring the Circle

http://www.youtube.com/watch?v=CMP9a2J4Bqw



What do you know about this problem?
……………………………………………………………………

Listen and watch, then answer questions.

1) When was this problem solved?

   ………………………………………………………………

2) Which tools could ancient Greeks use to construct numbers?..........................................................................................

3) What can be done with these tools?

   ……………………………………………………………………………………

4) Which numbers are called constructible?

   ……………………………………………………………………………………

5) Which constructible numbers are irrational?

   ……………………………………………………………………………………

6) What are the relations among constructible, algebraic, and transcendental numbers?..........................................................................................

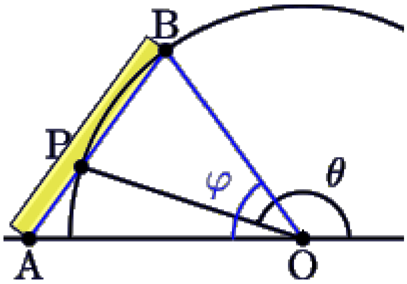
7) How was it proven that squaring the circle is impossible?

   ……………………………………………………………………………………

8) What would happen if algebra did not exist?

   ……………………………………………………………………………………

# Trisecting an angle Article by: ***J J O'Connor* and *E F Robertson***




**Pre-reading 1) Apart from squaring the circle, there were other two famous problems of the Greek geometry – trisecting an angle and doubling the cube. What do you know about these problems?**

**2) Do you know how to bisect angles? Describe it.**

**3) Try to explain the following terms:**

trisector   amateur mathematician   radius   equilateral triangle

compass   regular polygon   arbitrary angle

**Reading. 1) Read the text and correct these wrong statements.**

**a)** Angle trisection was the most important problem in ancient Greek times.
**b)** During his career, the author created many false proofs concerning the problem of trisecting an arbitrary angle.
**c)** When we know that a proof is wrong, we can easily find out why.
**d)** Trisecting an angle is special because it has never been studied in history.

There are three classical problems in Greek mathematics which were extremely influential in the development of geometry. These problems were those of squaring the circle, doubling the cube and trisecting an angle. The present article studies the problem of trisecting an arbitrary angle. In some sense this is the least famous of the three problems. Certainly in ancient Greek times doubling of the cube was the most famous, then in more modern times the problem of squaring the circle became the more famous, especially among amateur mathematicians.

The problem of trisecting an arbitrary angle, which we examine here, is the one for which I have been sent the largest number of false proofs during my career. It is an easy task to tell that a 'proof' one has been sent 'showing' that the trisector of an arbitrary angle can be constructed using ruler and compasses must be incorrect since no such construction is possible. Of course knowing that a proof is incorrect and finding the error in it are two different matters and often the error is subtle and hard to find.

There are a number of ways in which the problem of trisecting an angle differs from the other two classical Greek problems. Firstly it has no real history relating to the way that the problem first came to be studied. Secondly it is a problem of a rather different type. One cannot square any circle, nor can one double any cube. However, it is possible to trisect certain angles.

**2) Read the second part and try to draw two constructions following the instructions.**

a) For example there is a fairly straightforward method to trisect a right angle. For given the right angle *CAB* draw a circle to cut *AB* at *E*. Draw a second circle (with the same radius) with centre *E* and let it intersect the first circle at *D*. Then *DAE* is an equilateral triangle and so the angle *DAE* is 60° and *DAC* is 30°. So the angle *CAB* is trisected.

b) Although it is difficult to give an accurate date as to when the problem of trisecting an angle first appeared, we do know that Hippocrates, who made the first major contribution to the problems of squaring a circle and doubling a cube, also studied the problem of trisecting an angle. There is a fairly straightforward way to trisect any angle which was known to Hippocrates. It works as follows. Given an angle *CAB* then draw *CD* perpendicular to *AB* to cut it at *D*. Complete the rectangle *CDAF*. Extend *FC* to *E* and let *AE* be drawn to cut *CD* at *H*. Have the point *E* chosen so that $HE = 2AC$. Now angle *EAB* is $^1/_3$ of angle *CAB*. To see this let *G* be the midpoint of *HE* so that $HG = GE = AC$. Since *ECH* is a right angle, $CG = HG = GE$. Now angle *EAB* = angle *CEA* = angle *ECG*. Also since $AC = CG$ we have angle *CAG* = angle *CGA*. But angle *CGA* = angle *GEC* + angle *ECG* = 2 × *CEG* = 2 ×*EAB* as required.

The proof of the impossibility had to await the mathematics of the 19$^{th}$ century. The final pieces of the argument were put together by Pierre Wantzel. In 1837 Wantzel published proofs in *Liouville's Journal.* Gauss had stated that the problems of doubling a cube and trisecting an angle could not be solved with ruler and compasses but he gave no proofs. In this 1837 paper Wantzel was the first to prove these results.

**3) Do you think there are other means to trisect angles by going outside the Greek framework?**