

Mathematician of the week

Benjamin Banneker

Born 9th November 1731 – died 9th October 1806



Benjamin Banneker was born in Maryland, USA. His father and grandfather were both slaves and he lived on a tobacco farm.

At an early age he went to a Quaker school and learnt arithmetic. His grandmother taught him to read and write but he was soon needed on the farm so his official schooling ended. He still loved mathematical quizzes and kept a book with a selection in it.

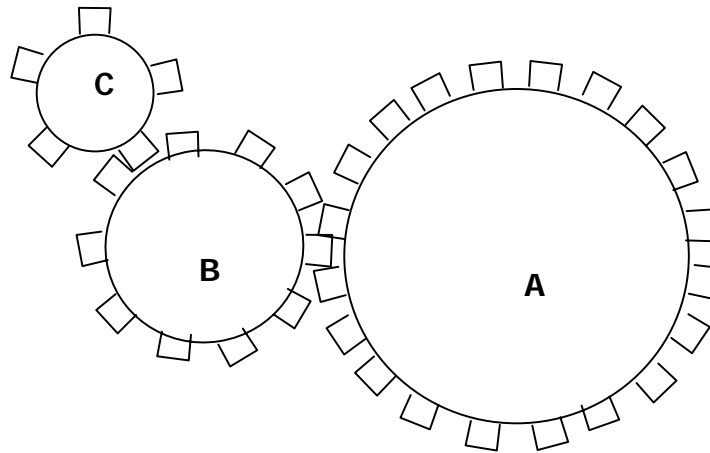
The Banneker family had no clocks or watches but one day aged about 22 he managed to borrow a pocket watch from a well-to-do neighbour; he took it apart and made a drawing of each component, then reassembled the watch and returned it, fully functioning, to its owner. He then built a large clock for his family out of wood. It worked for 50 years and many people used to come and look at it.

At age 58, Banneker began the study of astronomy and was soon predicting future solar and lunar eclipses. He published these works in almanacs. The "Sable Astronomer" was often pointed to as proof that African-Americans were not intellectually inferior to European-Americans. Thomas Jefferson himself noted this in a letter to Banneker. His famous quote was that "the colour of skin is in no way connected with the strength of the mind or intellectual powers".

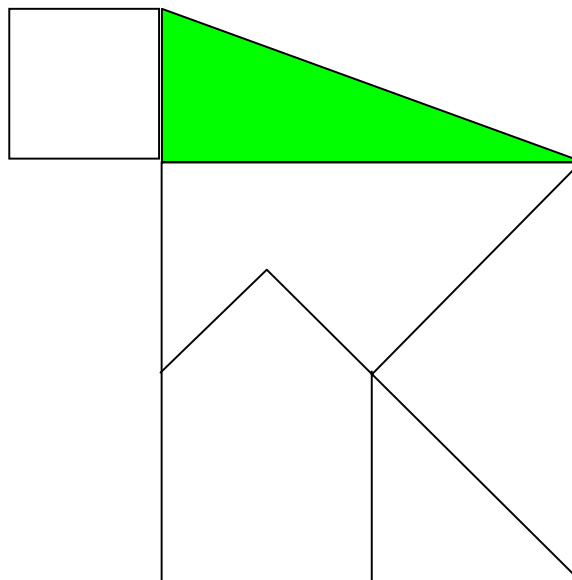
Here are some of the problems that Banneker would have looked at.

1. Suppose gear A makes one complete revolution clockwise.
 - a. Will gear B move clockwise or anti-clockwise?
 - b. Will gear C move clockwise or anti-clockwise?
 - c. How many revolutions will gear B make?
 - d. How many revolutions will gear C make?

2. Suppose gear B moves 8 revolutions clockwise.
 - a. Will gear A move clockwise or anticlockwise?
 - b. How many revolutions will gear A make?
 - c. How many revolutions will gear C make?



3. Cut out the following puzzle and arrange the five un-shaded pieces to form one large square on the hypotenuse of the shaded right angled triangle.

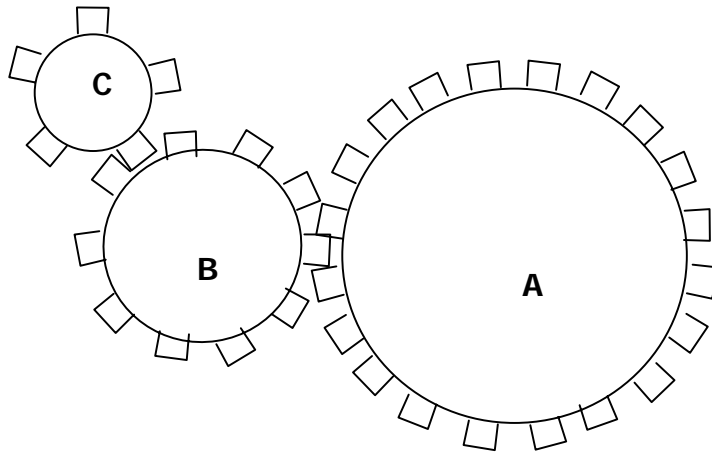


Who's famous theorem does this illustrate?

Solutions to Banneker's questions

1. Suppose gear A makes one complete revolution clockwise.
 - a. anti-clockwise
 - b. clockwise
 - c. 2
 - d. 4

2. Suppose gear B moves 8 revolutions clockwise.
 - a. anticlockwise
 - b. 4
 - c. 16



3. Pythagoras

