

NAME: ALINA SYED

BATCH: 401

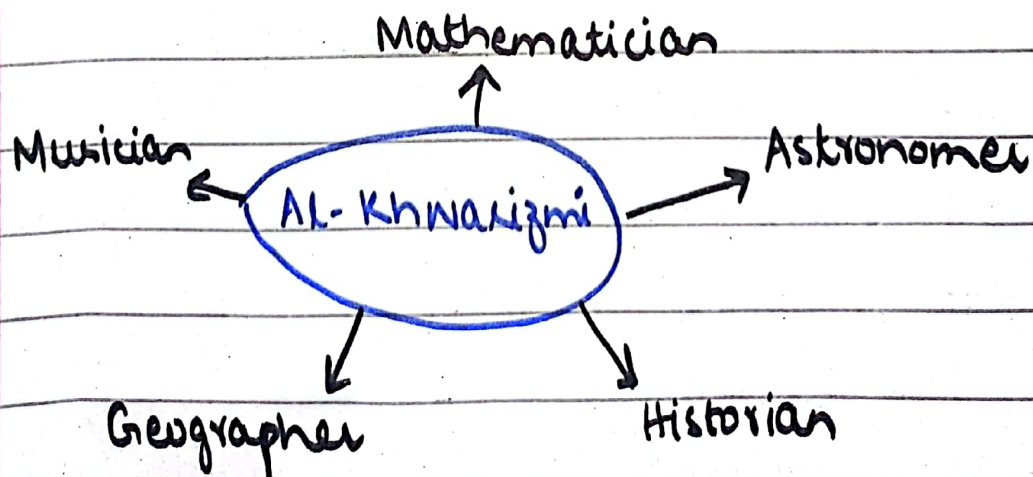
Question-3

Write short notes on the following

(a) AL-KHWARIZMI (780-847 AD)

Introduction:

Muhammad bin Musa Al-Khwarizmi was a great Muslim Scientist born in Khawarizm in 780-847 AD. He carried all his scientific works in Baghdad. All of his works are in Arabic.

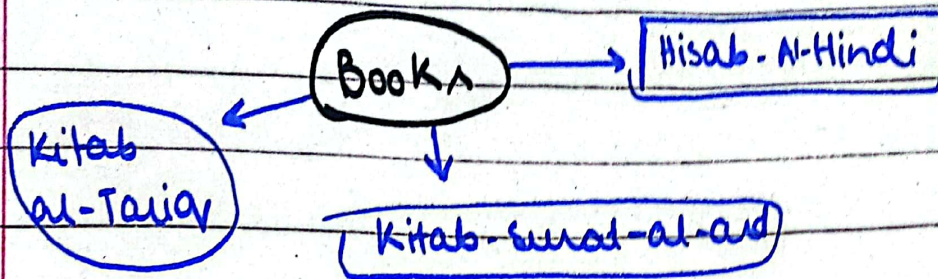


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Major Contributions:

- He was the first person to use zero.
- Composed oldest works on algebra and astronomical tables.
- He gave analytical solutions of quadratic and linear equations in the book Hisab al-Jabr wal Muqabala. This book was used as principle mathematics book in European universities until 16th century.
- He also introduced method of counting based on numerals and decimal systems for the first time.
- He gave idea of shape of earth in his book Kitab-surat-al-ard.
- He wrote book on history named Kitab-al-ta'iq.
- He also composed astronomical tables known as Zijj, which became model for astronomical

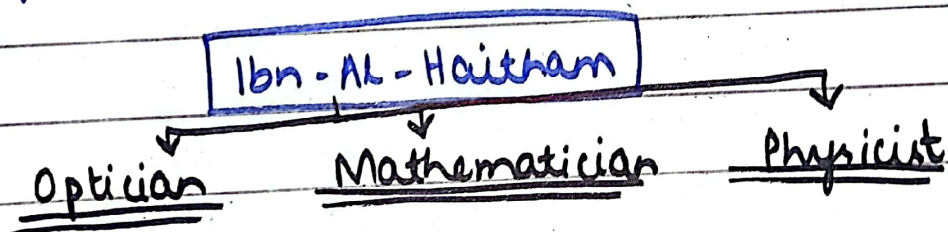
studies in East and West.



(b) Ibn Al-Haitham (975-1039)

Introduction:

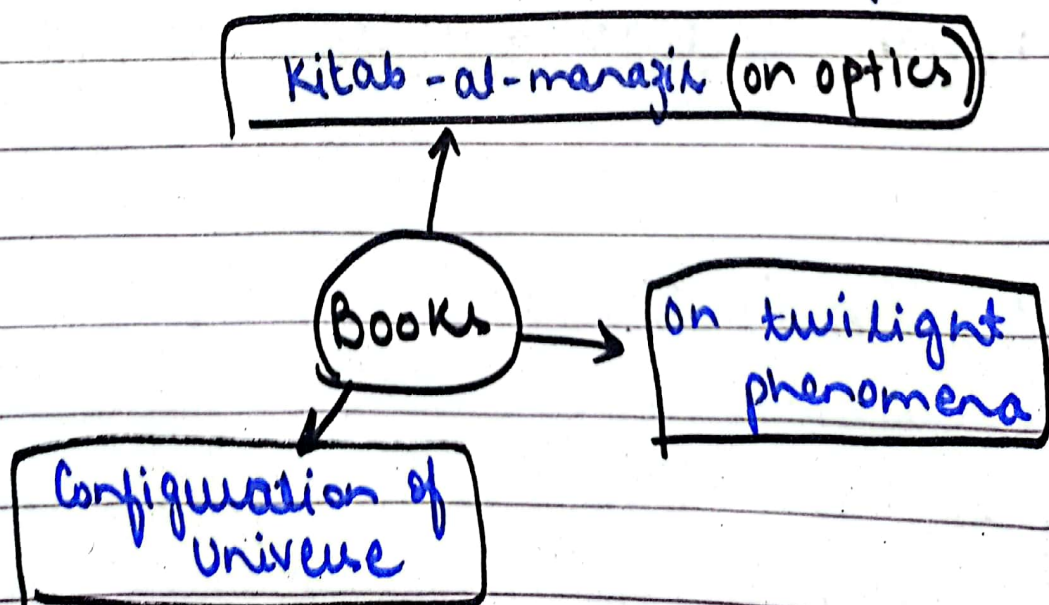
Known as ALHAZAN in the west, Ibn-al-Haitham was born in Basra, Iraq and is known as father of optics.



Major Contributions:

- His optical works were translated in Latin.
- He explained refraction of light rays through transparent objects.

- He was the first person to discover magnifying lenses.
- He explained the function of retina as the primary components of eye that is responsible for vision.
- He elaborated two laws of reflection of light.
- He also constructed ~~pinhole~~ pinhole camera.
- The first person who declared that light is the form of energy was him.
- Gravitational force was also identified by him which laid the foundations of the work of Isaac Newton on laws of gravity.

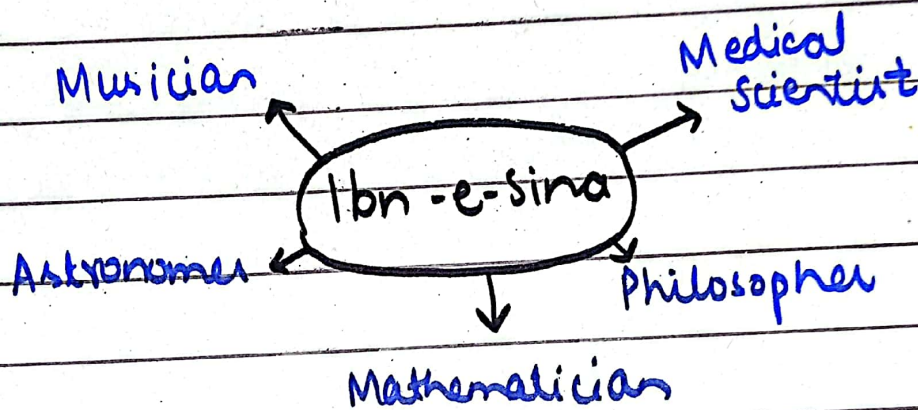


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Ibn-e-Sina (980-1037)

Introduction:

Abu Ali Ibn-e-Sina, popularly known as AVICENNA in the west was the greatest intellectual giant of his ages. He made groundbreaking discoveries in the field of medicine.

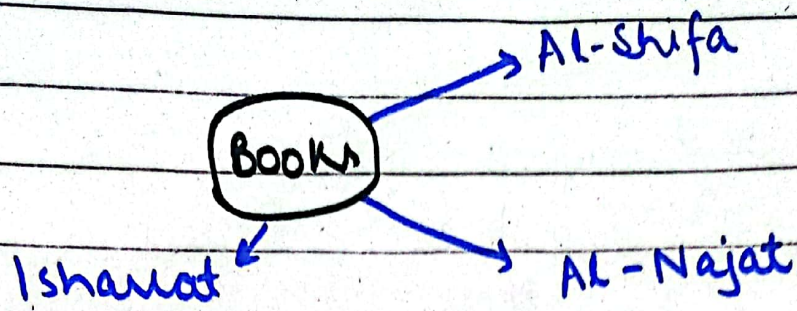


Contributions:

- He wrote a famous book Al Qanun Fil Tib in which he discussed human physiology and medicine. This book is known as **CANON** in Latin. This book was translated in many languages and was used as text book of medicine.

for hundreds of years in the west.

- He was the first person who used catheters which were made of skins of various animals.
- He also described medicinal properties of about 800 plants.
- He integrated philosophy of Aristotle with Islamic theology and influenced many European philosophers.
- He explained concepts of metaphysics and mind-body connections.
- He also invented a device to monitor star coordinates.
- He is also known as Father of Geology, as he explained understanding of fossils, geological processes.
- He also proposed that light travels faster than sound and developed theories on motion.



Question- 1

D) If 40% of a number is equal to two-third of another number, what is the ratio of first number to the second number?

GIVEN DATA:

$$40\% \text{ of } A = \frac{2}{3} \text{ of } B$$

REQUIRED DATA:

$$\frac{A}{B} = ?$$

SOLUTION:

$$\frac{40}{100} A = \frac{2}{3} B$$

By cross-multiplying we get:

$$3 \times (40A) = 400(2B)$$

$$120A = 200B$$

$$\frac{A}{B} = \frac{200}{120}$$

$$\frac{A}{B} = \frac{20}{12}$$

$$\frac{A}{B} = \frac{5}{3}$$

RESULT:

Ratio of first number
to second number is 5:3

B) Two numbers ^{A and B} are such that
5% of A and 4% of B is
two third of the sum of
6% of A and 8% of B. Find the
ratio of A:B.

GIVEN DATA:

$$5\% \text{ of } A + 4\% \text{ of } B = \frac{2}{3} (6\% \text{ of } A + 8\% \text{ of } B)$$

REQUIRED DATA:

$$A : B = ?$$

SOLUTION

$$\frac{5}{100} A + \frac{4}{100} B = \frac{2}{3} \left(\frac{6}{100} A + \frac{8}{100} B \right)$$

$$\frac{5A + 4B}{100} = \frac{2}{3} \left(\frac{6A + 8B}{100} \right)$$

Multiplying both sides by 100.

$$100 \left(\frac{5A + 4B}{100} \right) = \frac{2}{3} \left(\frac{6A + 8B}{100} \right) 100$$

$$5A + 4B = \frac{2}{3} (6A + 8B)$$

$$15A + 12B = 12A + 16B$$

$$15A - 12A = 16B - 12B$$

$$3A = 4B$$

$$\frac{A}{B} = \frac{4}{3}$$

RESULT:

Ratio of A:B is 4:3.

c) A sum of money is distributed among A, B, C, D in the proportion of 5:2:4:3. If C gets rupees thousand more than D, what is the B's share.

GIVEN DATA:

→ Proportion of money for

$$A : B : C : D = 5 : 2 : 4 : 3.$$

→ Share of C is 1000 more than D.

REQUIRED DATA:

Share of B = ?

SOLUTION:

Let the share of each be x .

Then shares are

$$A = 5x$$

$$B = 2x$$

$$C = 4x$$

$$D = 3x$$

Now,

$$C + 1000 = D$$

$$4x + 1000 = 3x$$

$$4x - 3x = 1000$$

$$x = 1000$$

→ So, the common share x between all is 1000.

→ Share of B is $2x$, which is $2(1000) = 2000$.

RESULT:

B's share is 2000.

A) What percentage of numbers from 1 to 70 have 1 or 9 in the units digit?

GIVEN DATA:

→ Numbers from 1 to 70

→ Digits to be considered: units.

digits which contain 1 and 9.

REQUIRED DATA:

Percentage of numbers of from 1-70 with units digits as 1 or 9.

SOLUTION:

Numbers that contain 1 or 9 from 1 to 70 at units place are:

1, 9, 11, 19, 21, 29, 31, 39, 41, 49, 51, 59, 61, 69.

→ These are total 14 numbers.

→ So,

$$\frac{14}{70} \times 100$$

$$= \frac{14}{7} \times 10$$

$$= 2 \times 10$$

$$= 20\%$$

RESULT:

Percentage of numbers from 1 to 70 that have 1 and 9 at unit digits are 20%.
