

NAME: ALINA SYED

BATCH: 401

20
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Question-3

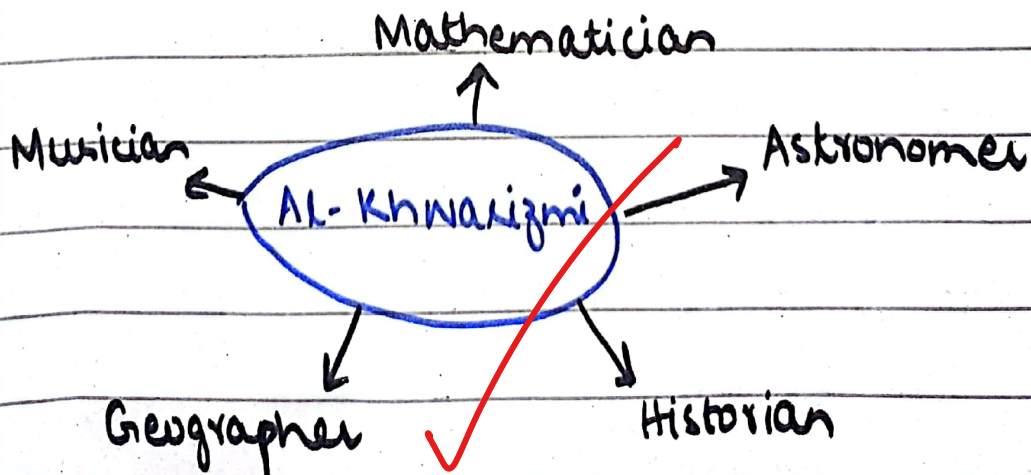
Write short notes on the following

(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 out his scientific works in Baghdad. All of his works are in Arabic.

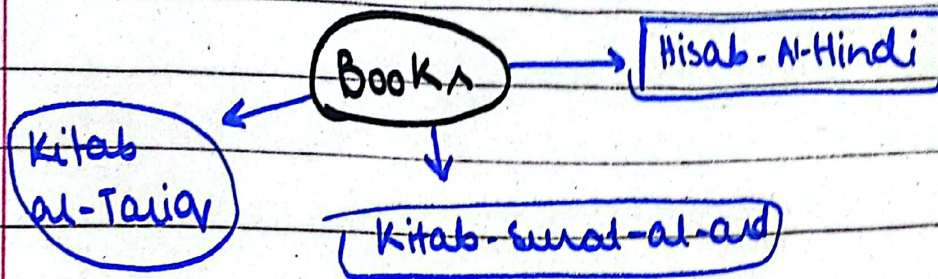


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Major Contributions:

- 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

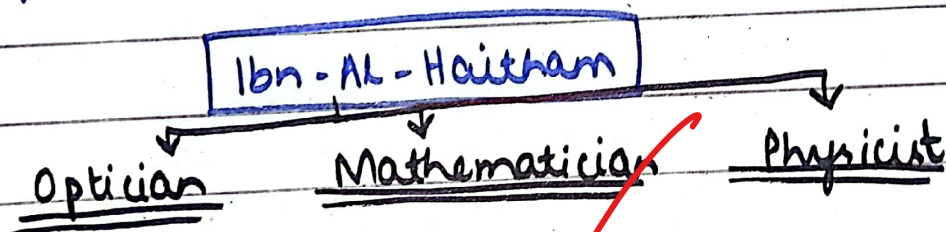
studies in East and West. ✓



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

Introduction:

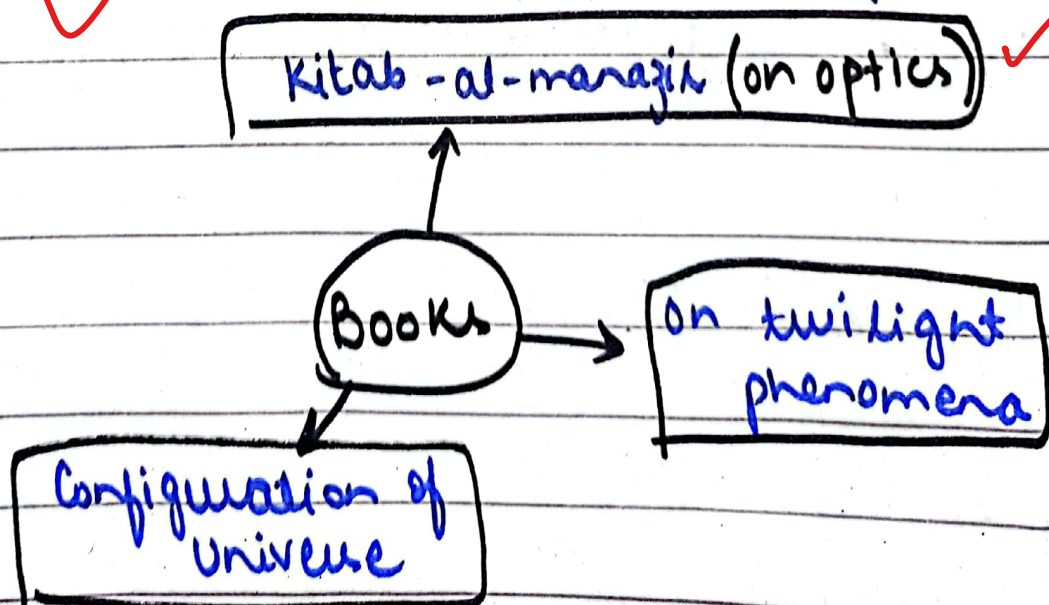
Known as ALHAZAN in the west, Ibn-al-Haitham was born in Basra, Iraq and is known as father of optics. ✓



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 component 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.

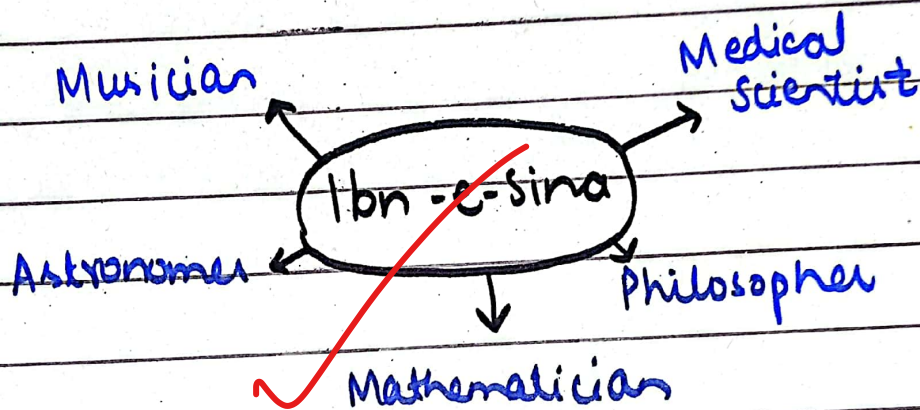


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Ibn-e-Sina (980-1037)

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.



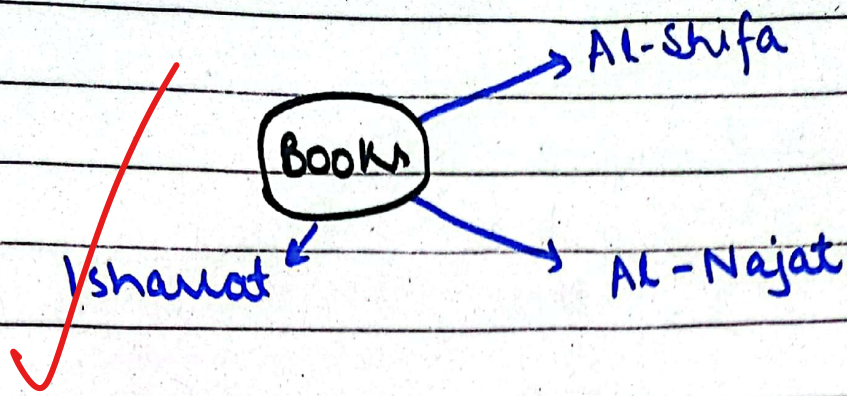
Contributions:

- 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.

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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%.
