



Aakash

Medical | IIT-JEE | Foundations



KNOWLEDGE BYTES

June 2026

June 2026

CLASS 9





Aakash

Medical | IIT-JEE | Foundations

ALL RIGHTS RESERVED

All rights including copyright and translation rights etc. reserved and vests exclusively with AESL. No part of this publication may be reproduced, distributed, redistributed, copied or transmitted in any form or by any means-graphical, electronic or mechanical methods including photocopying, recording, taping or stored on information retrieval systems of any nature or reproduced on any disc, tape, media, information storage device, without the prior written permission of AESL. Breach of this condition is liable for legal action (civil as well as criminal) under the applicable Laws.

Edition: 2026-27

© Aakash Educational Services Limited [AESL]



PREFACE

What is Knowledge Bytes?

Knowledge Bytes is a collection of riddles, interesting facts, mnemonics and puzzles that will make your learning fun and engaging.

We want you to be delighted about studying. Knowledge Bytes helps you to know more about the subject in a fun, motivating and educational way and helps to implement what you learn in a creative way.

Benefits



Saves Time



Develops Learning Skills



Stimulates Interest



Leads to Increased Comprehension

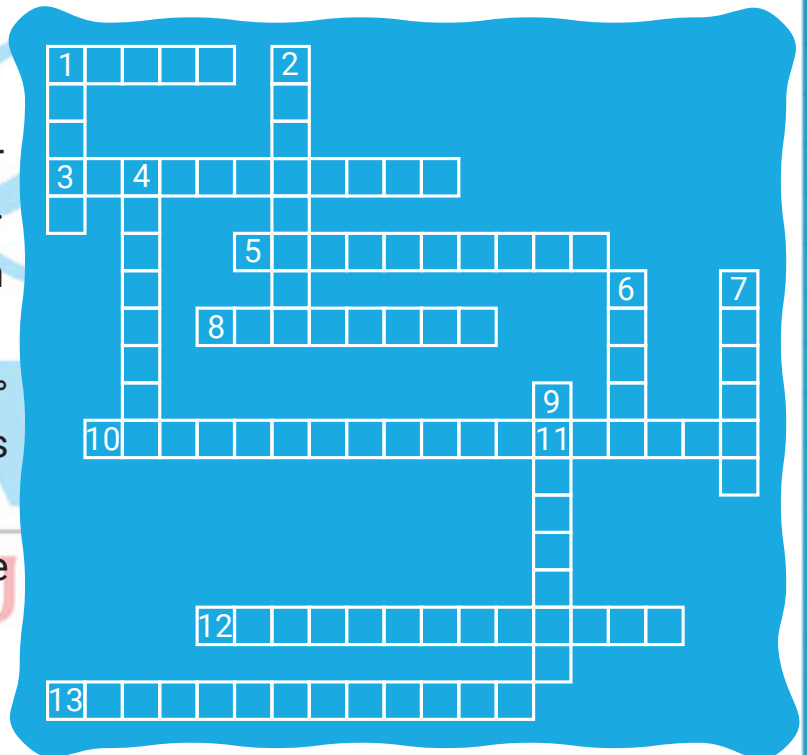


Crossword

Lines and Angles

Across

1. Figure formed by two rays having same end point.
3. A line intersecting two other lines.
5. Two adjacent angles formed on a straight line.
8. Two lines that do not intersect or meet are known as _____ lines.
10. The arms of a straight angle form a _____.
11. Angle measuring less than 180° and more than 90° is known as _____ angle.
12. Two angles whose sum is 90° are called _____ angles.
13. Two angles whose sum is 180° are called _____ angles.



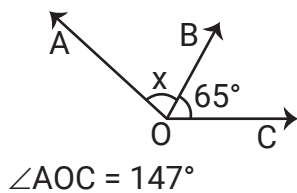
Down

1. Angle measuring less than 90° and more than 0° is known as _____ angle.
2. Angle whose measure is equal to the sum of two interior opposite angles of a triangle is known as _____ angle.
4. Two angles having a common ray and a common vertex are called _____ angles.
6. Angle measuring 90° is known as _____ angle.
7. Angle measuring less than 360° and more than 180° is known as _____ angle.
9. Angle measuring 360° is known as _____ angle.

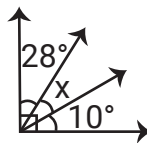


Trace out the path from start to end. Each path can be crossed only if value of x is correct.

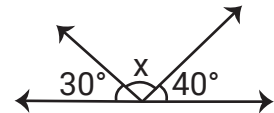
S
T
A
R
T



82°



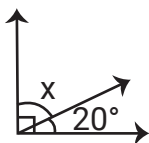
52°



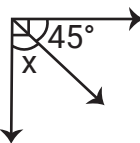
80°

51°

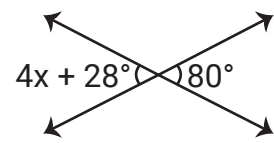
110°



45°



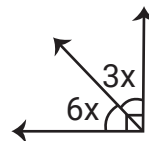
12°



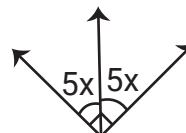
70°

9°

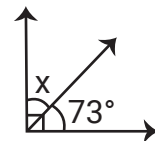
13°



10°



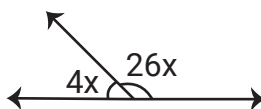
16°



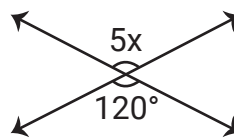
90°

20°

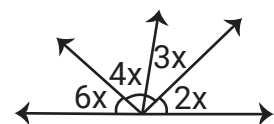
17°



24°



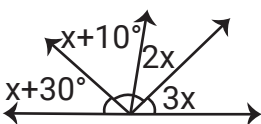
12°



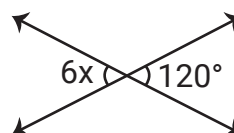
6°

18°

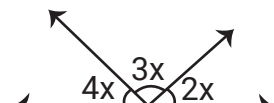
14°



18°



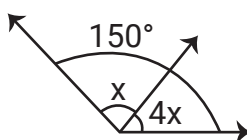
16°



20°

9°

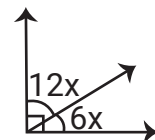
20°



30°

END

5°



ACTIVITY

Six places to visit

Well, we're going to look at visiting places.

Here's the road map :



There are six places to visit :

1. Relatives who live in the tall house with blue door
2. Friends who live in the house with trees
3. The wide school building
4. The blue church
5. The healthcare centre with blue roof and pink walls
6. The little pink shop

You live in the yellow house at the bottom of the map.

Starting at your house, try to describe the journey to each of the six places. You'll need to describe the bends in the road [how much they turn] and which way to turn at junctions.



Riddles

Write one meaningful word using letters from the following riddles.

1. I am a letter with a set of three horizontal and parallel lines.

I also have a vertical line segment to the left of the parallel lines.

3. I am a letter with two vertical parallel line.

I also have a horizontal line segment in between the parallel lines.



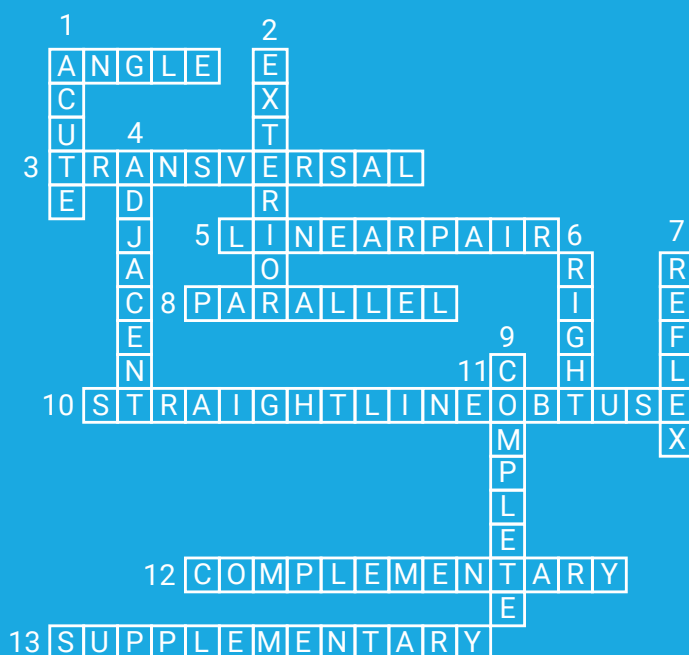
2. I am a letter with an acute angle.

I also have a horizontal line segment.

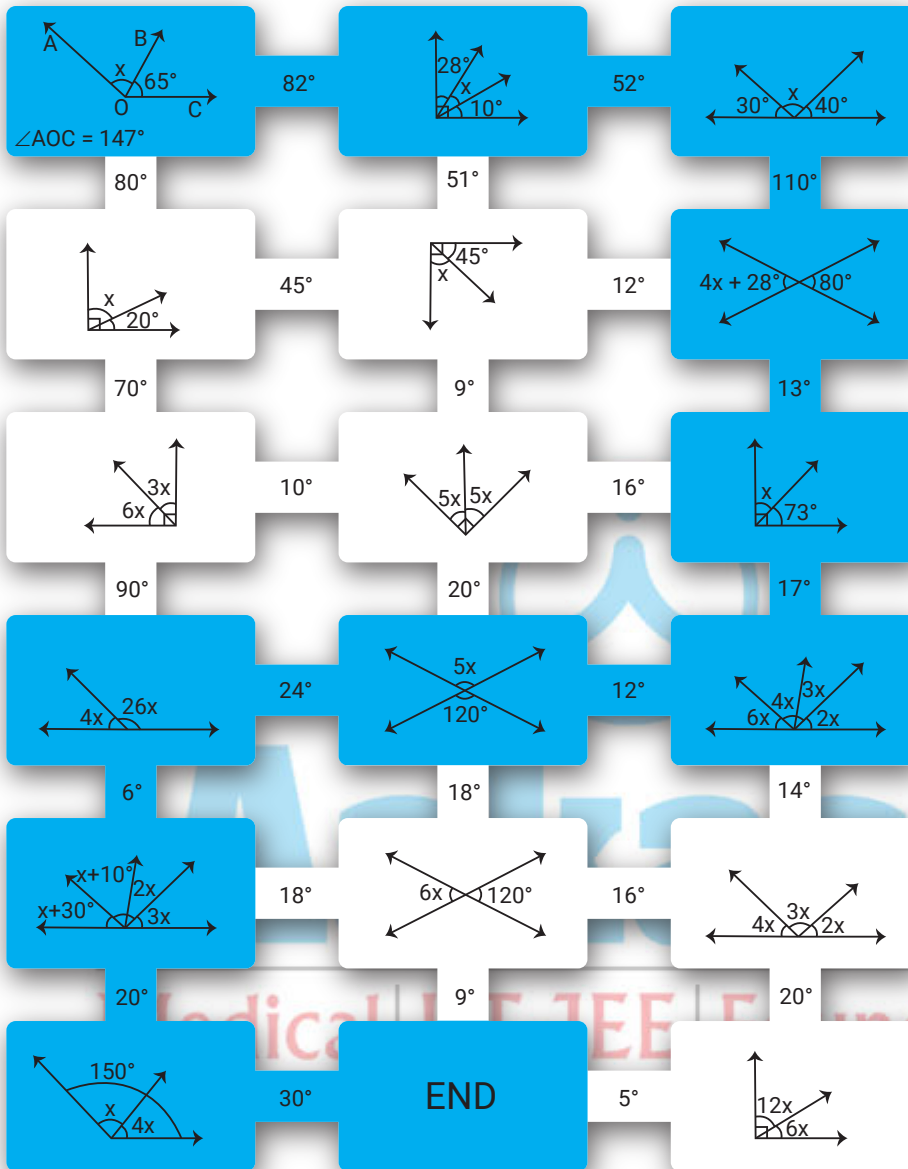
4. I am a letter with three line segments and two of them are parallel.

I also have two acute angles.

Answer (Crossword)



S
T
A
R
T



???



Answer (Riddles)

1. E 3. H
2. A 4. Z

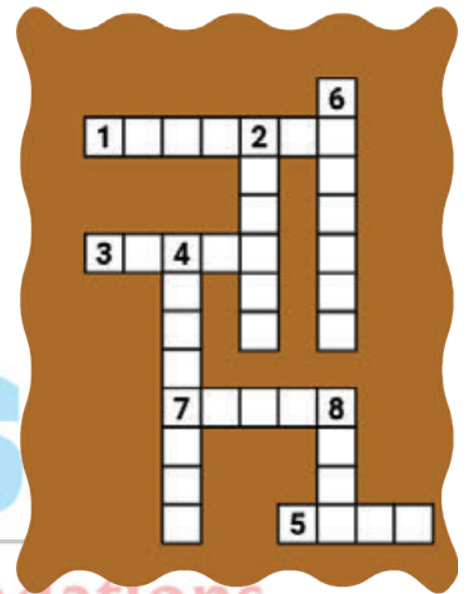
So, the meaningful word is HAZE.

Crossword Force and Laws of Motion

Crossword

ACROSS

- 1 The product of force and time is called _____.
- 3 A push or a pull on an object is called _____.
- 5 A body is said to be under balanced forces, when the resultant force acting on the body is _____.
- 7 Recoil velocity of gun is an example of Newton's _____ law.



DOWN

- 2 The product of mass and velocity is called _____ momentum.
- 4 To every action there is an equal and opposite _____.
- 6 _____ force is always pulling in nature.
- 8 The CGS unit of force is _____.



Interesting Facts

1. Running Makes You Harder to Stop

The faster you run, the harder it is to stop because your body has more momentum. Greater momentum means more force is needed to stop.



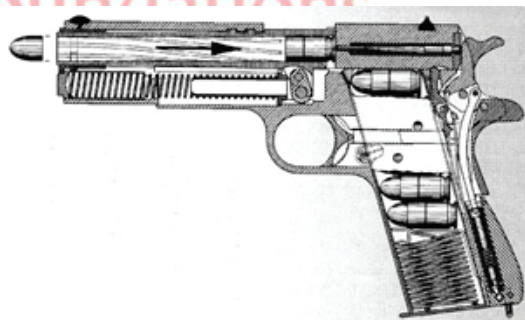
2. Kicking a Football vs. a Stone

When you kick a football, it moves easily, but kicking a stone hurts your foot because the stone has more mass and resists motion (greater inertia).



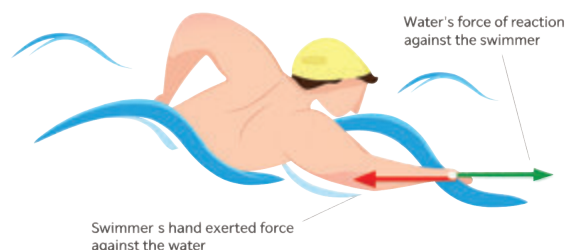
3. Recoil of a Gun

When a bullet is fired forward, the gun moves backward. This backward motion is called recoil and is due to Newton's Third Law.



4. Swimming Works on Physics

Swimmers push water backward with their hands and feet, and the water pushes them forward with equal force.



Myth-Buster

1. An object is hard to push because it is heavy.

A heavy object is hard to push. But this is not because of its weight, instead it is because of its inertia which is the property of mass of an object by virtue of which it resists its change in motion.



2. Lighter objects like feather fall slower than heavier ones like hammer in vacuum.

All objects experience air resistance when moving through air and air resistance is proportional to area of an object in direction of motion. For light objects, like a feather, greater surface leads to them experiencing greater air resistance as compared to heavier objects like hammer having lesser surface area. But in vacuum there is no air resistance, so they fall at the same rate.



Answer (Crossword)



Aakash

Medical NEET Foundation





Exploring Mixtures and their Separation

Fun Time



Want to hear a joke about sodium, bromine and oxygen ?

NaBrO.

Sure enough, the chemical symbols of sodium (Na), bromine (Br) and oxygen (O) combine to form a casual way to tell someone you're not interested in hearing a joke.

Two chemists walk into a cafe.

One says, "I'll have H_2O ." The other says, "I'll have H_2O , too." The second chemist dies.

H_2O_2 is the chemical formula for hydrogen peroxide, which you can't drink without grievous consequences.

If H_2O is water and H_2O_2 is hydrogen peroxide, what is H_2O_4 ?

Drinking, bathing and lots of other daily activities.
Get it? What is it 4?





Riddles

Who I am?? What I am, a mixture or a pure substance?

1. I am invisible and present everywhere. You breathe one of my component.

2. I am tasteless and odourless yet very important for you. You drink me everyday.

3. I am very costly, not everyone can afford me. Golden yellow is my colour and you wear my ornaments.

4. Trees have their roots in me. I provide them support, nutrients and my colour is brown.

5. I am white and very healthy. You may or may not like me but your mom will always like me. You drink me.

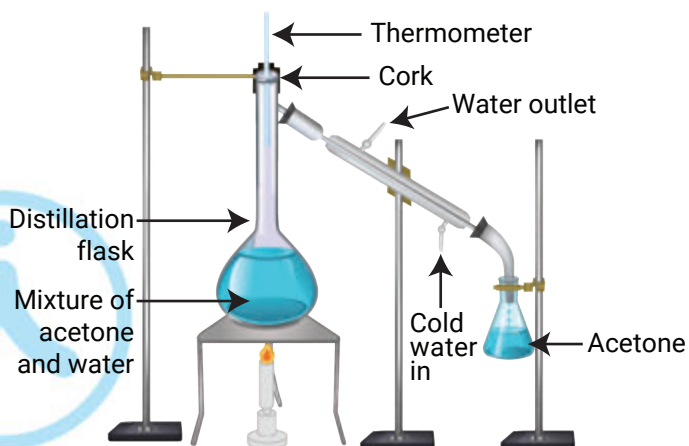




Quiz

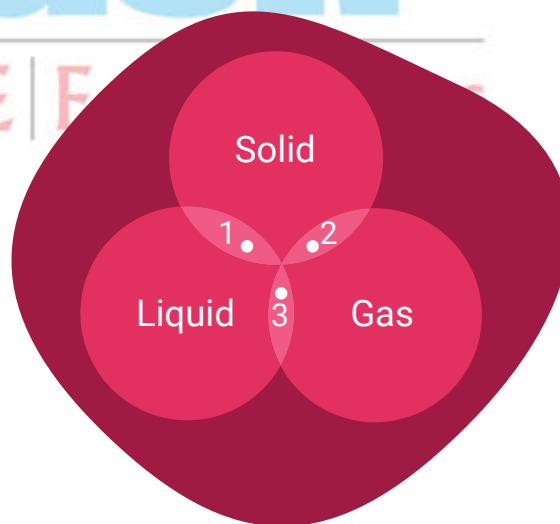
Q.1 What is the function of water condenser in the given experimental set-up?

- (1) To apply pressure to the mixture in distillation flask
- (2) To allow only lower boiling component to escape
- (3) To cool and condense the vapours
- (4) To allow the water from the mixture to move out



Q.2 Which of the following colloidal systems correctly represent points 1, 2 and 3?

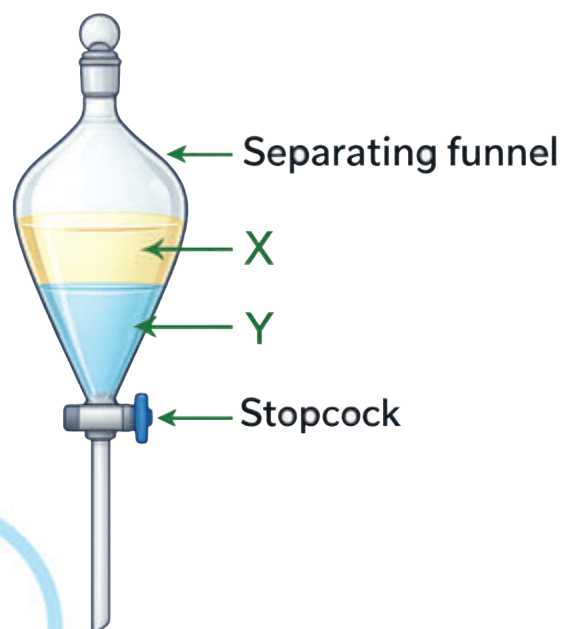
- | (1) | 1 | 2 | 3 |
|-----|------|---------------|------------|
| | Mist | Whipped cream | Dust fumes |
- | (2) | 1 | 2 | 3 |
|-----|------|------------|--------------|
| | Milk | Hair cream | Pumice stone |
- | (3) | 1 | 2 | 3 |
|-----|--------|-------|-------|
| | Paints | Smoke | Cloud |
- | (4) | 1 | 2 | 3 |
|-----|------------------|---------------|--------|
| | Coloured glasses | Whipped cream | Butter |



Q.3 Consider the given figure.

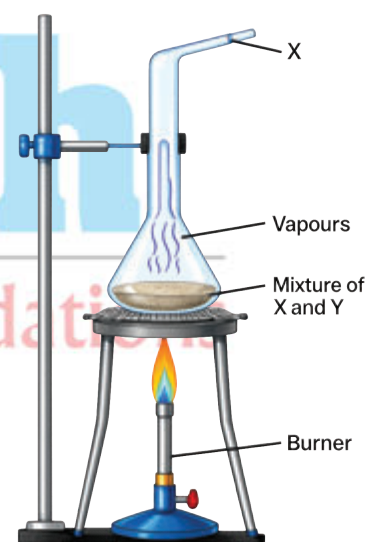
'X' and 'Y' respectively can be

(1)	Milk and cream
(2)	Water and milk
(3)	Water and kerosene oil
(4)	Kerosene oil and water



Q.4 Identify 'X' and 'Y' in the given diagram and choose the correct option.

(1)	Iodine and camphor
(2)	Sodium chloride and potassium hydroxide
(3)	Camphor and sand
(4)	Anthracene and naphthalene



Q.5 In water purification system, a substance 'X' is added in loading tank to make the finer suspended particles of clay to settle down. During this process another substance 'Y' is used to kill the germs. 'X' and 'Y' respectively are

- (1) Chlorine and alum
- (2) Copper sulphate and chlorine
- (3) Alum and chlorine
- (4) Common salt and chlorine



Answers

Riddles

1. Air - Mixture
2. Water - Pure substance
3. Gold - Pure substance
4. Soil - Mixture
5. Milk - Mixture

(Answer) Quiz

Q.1 (3)

Q.2 (3)

Q.4 (3)

Q.5 (3)

Medical | IIT-JEE | Foundations



Tissues

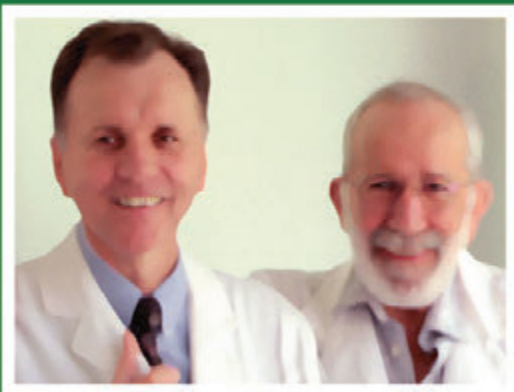
Beyond the Bravery

Boy who took a needle for the world:

James Phipps was the 8 years old boy on which the first vaccine was tested by Edward Jenner. He was Edward's gardener's son. Edward knew in his heart that the only those milkmaids were immune to smallpox who had first contracted cowpox, so he took fluids from their pustles, made a cut in the boy's hands and inoculated him with the fluid. Even after 20 times of inoculation with the live smallpox virus, he never got the disease even once. Later in life, Pasteur gave him, his wife and kids a cottage to live, which is currently a part of Edward Jenner Museum.



Not possible to test on others? No problem, I'll try myself!!



Dr. Barry Marshall tested *Helicobacter pylori* on himself to prove that this bacteria causes the peptic ulcers. His fellow Robin Warren developed the antibiotic which cured this condition. Both the scientists then went on to win Nobel Prize for this discovery.

Historical Facts

■ Hey tree! How old are you?

Have you heard about the rings formed inside the trees? Did you know that these rings can tell us not only the age of the tree but also what the weather was like during each year of the tree's life! The lighter rings are wood that grew in the spring and early summer, whereas the darker rings represent wood that grew in the late summer and fall. One light ring plus one dark ring equals one year of the tree's life!

And guess what! These rings are nothing but the old xylem getting crushed inside while the new one formed as outer layer! Now does it make sense to call the **Xylem as wood!!**



■ Oh! My Achilles' Heel!

Our body is a wonderful combination of organs and some scientists have a quirky way of naming them! One such organ is a tendon in our heel, that's been named as Achilles' Tendon, after a great Greek mythology warrior, famous as Achilles. The thing is, when he was born, his mother had dipped him into the River Styx, holding him by the heel, in order to make him Immortal! Yes! You read it right! So, he became invincible and no one was able to kill him! He had won every war, until his last became the Trojan war, where his enemies had discovered his secret. It was true that he was immortal but since his heel was not dipped completely in the river, his heel was mortal & was therefore was his weakness! An arrow shot on heel, was what killed him! So, now you know where your Achilles' tendon is! But what's your Achilles' heel?



Riddles

1 **Hint** I help in increase in height of the plant, i.e., primary growth. Who am I?

2 **Hint** I am living and forms the basic packing tissue of the plant body. Who am I?

3 **Hint** I am the protective layer of the plant and made up of single layer of cells but multilayered in xerophytic plants. Who am I?

4 **Hint** I am kidney shaped in dicots and help in opening and closing of stomata. Who am I?

5 **Hint** I am light in weight and does not catch fire easily and hence used in making sports goods, insulators and shock absorbers. Who am I?

6 **Hint** Without me plants can't take water and minerals from soil and I also provide support and mechanical strength to their body. Who am I?

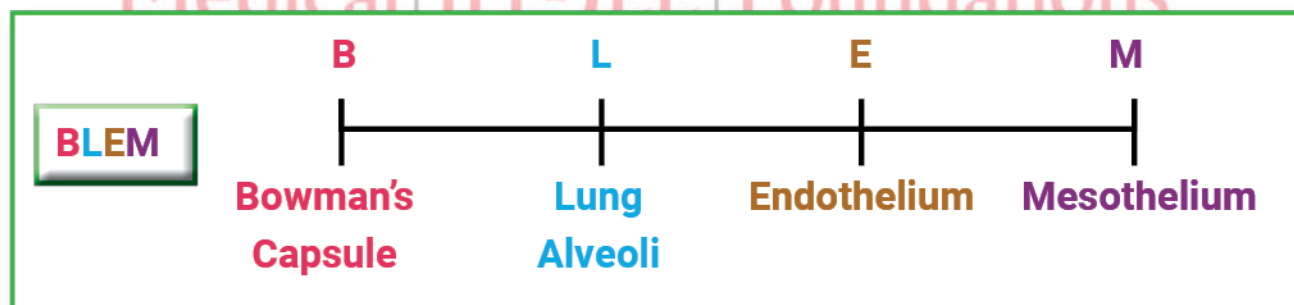
7 **Hint** I provide crunchiness to pear and guava and also yields coir (for making mats, brushes, etc.). Who am I?

Interesting Facts About Tissues

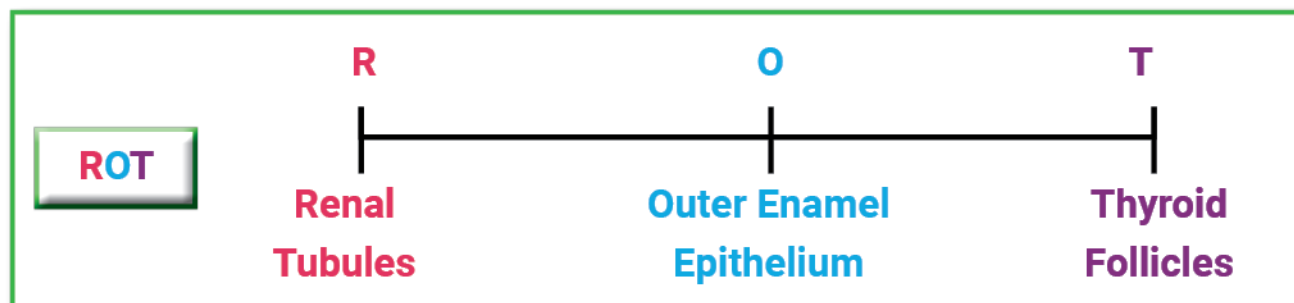
- 1 Ciliated epithelium helps in removing dust particles and germs from the air you breathe in.
- 2 Epithelial tissue make our skin waterproof, as they are filled with keratin protein.
- 3 A new born baby has around one cup of blood in his body.
- 4 If we put all neurons in our body in a line, it will be around 6000 miles long.
- 5 In every 7 years you have a new skeleton, as the collagen in bone constantly replenishes itself.

Mnemonics about Tissues

Simple Squamous



Simple Cuboidal



Answer (Riddles)

1

A P I C A L M E R I S T E M

2

P A R E N C H Y M A

3

E P I D E R M I S

4

G U A R D C E L L S

5

C O R K

6

X Y L E M

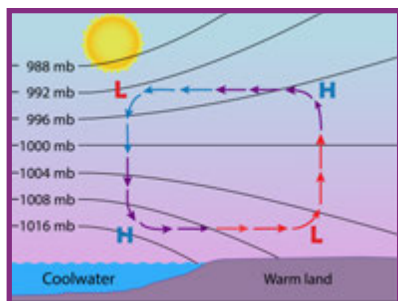
7

S C L E R E N C H Y M A



The Advancing Monsoon or Rainy Season in India

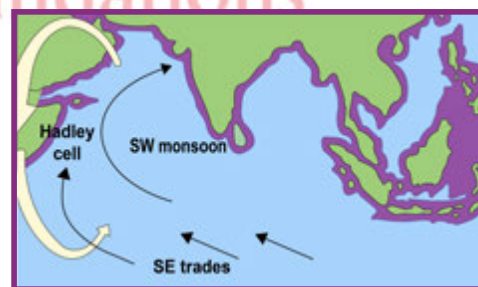
1 Towards the end of May, an elongated low-pressure area develops in the region extending from the Thar Desert in the northwest to Patna and Chotanagpur plateau in the east and southeast.



2 This low pressure attracts the South-east trade winds of the southern hemisphere.

Medical | IIT-JEE | Foundations

3 These South-east trade winds cross the equator and blow in a south-westerly direction and enters the Indian peninsula as the south-west monsoon.



4 As these winds blow over warm oceans, they bring abundant moisture to the Indian subcontinent.



Active and Passive Voice

Verbs are said to be either ACTIVE or PASSIVE in VOICE. In ACTIVE VOICE sentences, the subject performs the action stated by the verb.

In PASSIVE VOICE sentences, the subject is acted upon by the verb.

Example:

Active

The crew paved
the entire stretch
of highway.

Passive

The entire stretch
of highway was
paved by the crew.

General Rules to TRANSFORM VOICE

- **Rule 1.** The object of the sentence in Active voice becomes the subject of the sentence in Passive voice.
- **Rule 2.** The subject of the sentence in Active voice becomes the object of the sentence in Passive voice.
- **Rule 3.** The Passive voice contains the third form of the main verb.
- **Rule 4.** The form of the verb is chosen according to the tense of the sentence.
- **Rule 5.** Only transitive sentences can be changed into Passive voice.
- **Rule 6.** In passive voice, helping verb is placed before the main verb.
- **Rule 7.** In passive voice, preposition is placed before the object of the sentence, which was earlier the subject in active voice.

Example:

I
(Subject)

eat
(Verb in Active Voice)

an apple.
(Object)

An apple
(Subject)

is eaten
(Verb in Passive Voice)

by me.
(By + Object)

In passive sentences the preposition is placed before the object of the sentence, which was earlier the subject in active voice.

She looked for the dog.

The dog was looked for (by her).

Tense Change

Tense	Form	Example
Simple Present	is/am/are + past participle	The windows are cleaned by them.
Simple Past	was/were/ + past participle	The car was stolen by a thief.
Present Continuous	is/am/are + being + past participle	The house is being cleaned by her.
Past continuous	was/were + being + participle	The painting was being made by him.
Simple Future	shall/will + be + past participle	The match will be played by them.
Present Perfect	has/have + been + past participle	The park has been renovated by the MCD.
Past Perfect	had + been + past participle	The lock had been broken by Riya.
Future Perfect	will have + been + past participle	The piano will have been played by her.

A. Change the voice in the following sentences:

1. Buddha brought enlightenment.
2. The soldiers have repaired the broken bridge.
3. Who did that mistake?
4. Nobody can mend his chair.
5. We hope that Ms. Murmu will win.
6. They have closed the factory.

B. Choose the correct passive form from the given options.

1. The waiter filled the glasses with water.
(a) The glasses filled with water by the waiter.
(b) The water was filled in the glasses by waiter.
(c) The waiter was filling the glasses with water.
(d) The glasses were filled with water by the waiter.
2. Everyone will laugh at you.
(a) You would be laughed at by everyone.
(b) You will be laughed at by everyone.
(c) You are laughed at by everyone.
(d) You will have been laughed at by everyone.
3. The sight of the miserable beggar moved Rosemary to tears.
(a) Rosemary was moved to tears at the sight of the miserable beggar.
(b) Rosemary had moved to tears at the sight of the miserable beggar.
(c) Rosemary has moved to tears at the sight of the miserable beggar.
(d) Rosemary had been moved to tears at the sight of the miserable beggar.



4. It is impossible to do this.
- (a) This can't be done.
 - (b) That is impossible to be done.
 - (c) Doing this is impossible.
 - (d) This is impossible to be done.

Answers

- A.**
- 1. Enlightenment was brought by Buddha.
 - 2. The broken bridge has been repaired by the soldiers.
 - 3. (i) Whom was that mistake done by?
OR
(ii) By whom was that mistake done?
 - 4. His chair cannot be mended.
 - 5. It is hoped that Ms. Murmu will win.
 - 6. The factory has been closed (by them).

- B.**
- 1. (d)
 - 2. (b)
 - 3. (a)
 - 4. (d)





Brainstormer

There are 8 members in a family namely Alpha, Beta, Gama, Delta, Theta, Pi, Sigma and Omega in which there are 2 married couples. Among the 8 members there are 2 lawyers and 2 artists. Delta is the daughter-in-law of Sigma. Pi is the brother of any of the two artists. Omega, who is the artist, is the sister of Alpha. No female is a lawyer. Delta is an artist. Gama is the husband of Sigma. Theta is the only son of Sigma. Beta is the lawyer and is the brother of Gama. Alpha is the lawyer and is the son of Theta.



Q1. If Pi is the brother of Omega, how many children does Theta has?

- | | |
|------|------|
| 1. 6 | 2. 3 |
| 3. 5 | 4. 2 |

Q2. How many female members are there in the family?

- | | |
|----------|---------|
| 1. Three | 2. Four |
| 3. Five | 4. Six |

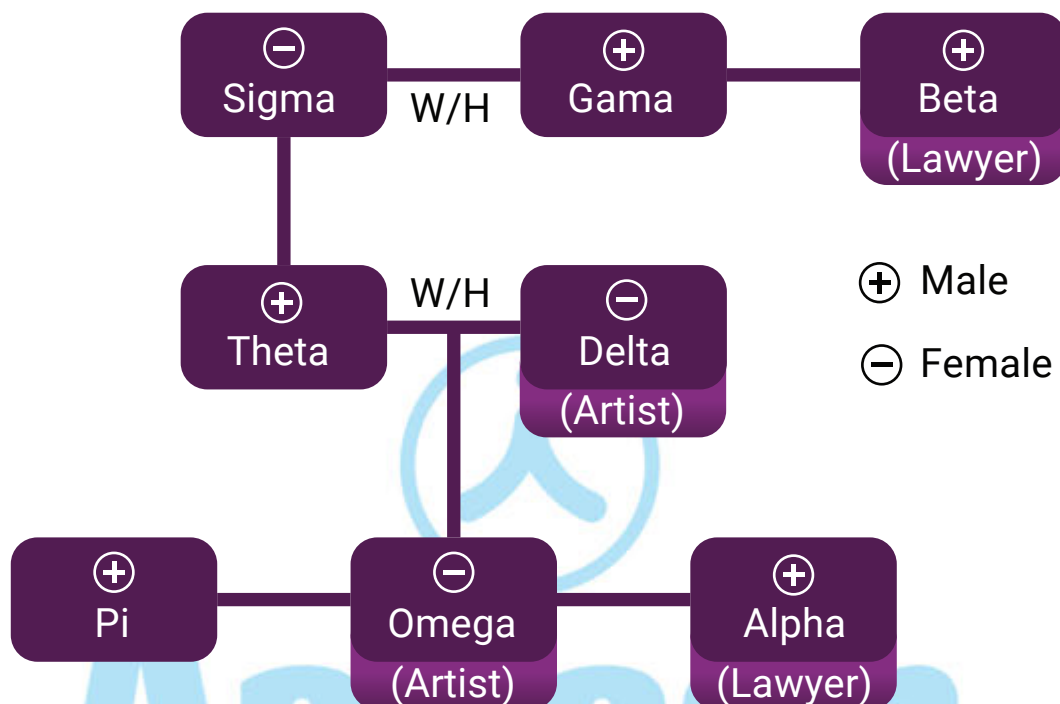
Q3. Which pair would be grandsons of Sigma?

- | | |
|--------------------|--------------------|
| 1. Delta and Alpha | 2. Omega and Theta |
| 3. Alpha and Pi | 4. Beta and Gama |



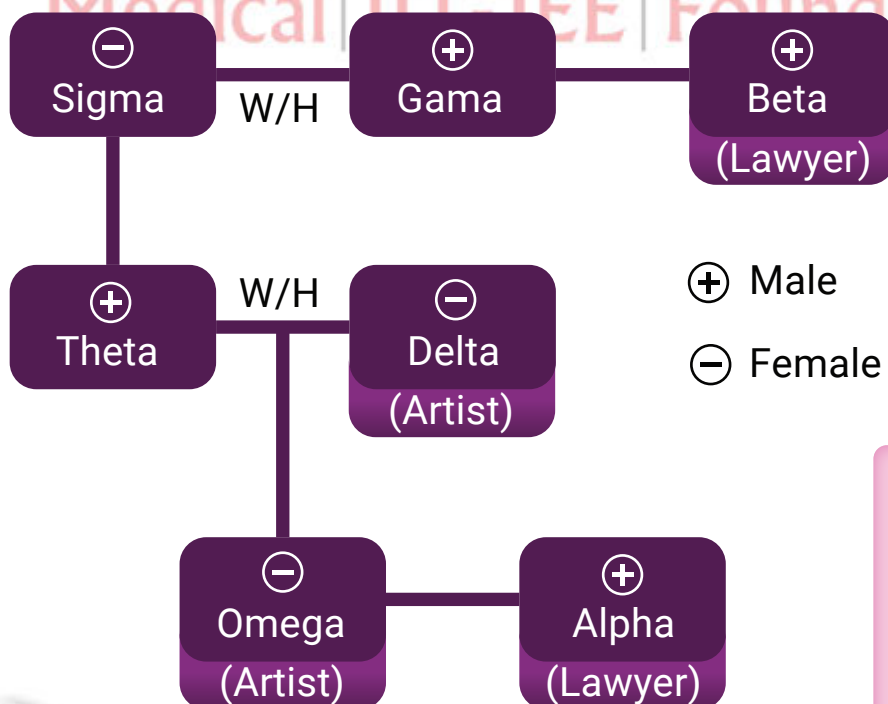
Answer (Brainstormer)

1. 2



2. 1

3. 3



NOTE

Relation of Pi is not confirm either Pi is brother of Omega or Delta.

Number Riddles

Question-1

How would you place the number 10, 20, 30, 40, 60, 70 and 80 so that the sum of each side of the square is 150?

50		

Question-2

Find A, B, C and D.

A	+	B	=	16
+		+		+
A	+	8	=	14
=		=		=
12	+	C	=	D

Solution-1

70	20	60
50		10
30	40	80

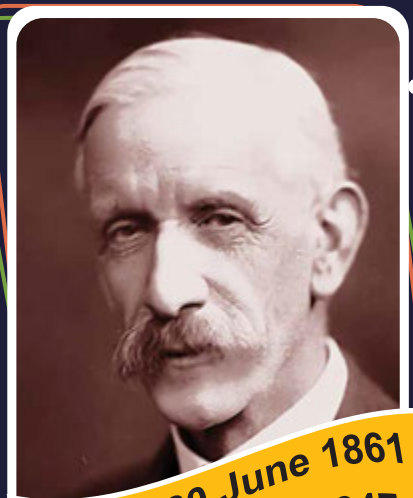
Solution-2

A = 6
B = 10
C = 18
D = 30

NOBEL PRIZE WINNER IN PHYSIOLOGY

Happy Birthday

Frederick Gowland Hopkins



Born - 20 June 1861
Died - 16 May 1947

Sir Frederick Gowland Hopkins, (born June 20, 1861, in **Eastbourne, East Sussex**, Eng. - died May 16, 1947, in Cambridge), was a British biochemist, who received the 1929 **Nobel Prize** for Physiology or Medicine (with **Christiaan Eijkman**) for discovery of essential **nutrient** factors-now known as **vitamins**-needed in animal diet to maintain **health**.

OUR STUDENTS DELIVER OUTSTANDING RESULTS IN CBSE CLASS X BOARD 2026



Aashna Khurana
100%
Marks Obtained **500/500**



Jaskirat Singh
100%
Marks Obtained **500/500**



Siddhesh Ingale
100%
Marks Obtained **500/500**



Yuvaan Singh
100%
Marks Obtained **500/500**



Shibashis Behera
100%
Marks Obtained **500/500**



Thanmaya Binukumar
100%
Marks Obtained **500/500**



Himanshu Aggarwal
100%
Marks Obtained **500/500**



Misha Palepu
100%
Marks Obtained **500/500**



Atharv Varshney
100%
Marks Obtained **500/500**



Aditya Raj
99.80%
Marks Obtained **499/500**



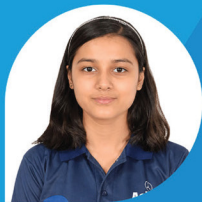
Ayaan Chettiar
99.80%
Marks Obtained **499/500**



Yashraj Yadav
99.80%
Marks Obtained **499/500**



Advit Agarwal
99.80%
Marks Obtained **499/500**



Avni Kapila
99.80%
Marks Obtained **499/500**



Biswarupa Nanda
99.80%
Marks Obtained **499/500**



Amrita Pani
99.80%
Marks Obtained **499/500**



Ishaan Chattopadhyay
99.80%
Marks Obtained **499/500**



Arnav Gupta
99.80%
Marks Obtained **499/500**



Suhana Mehta
99.80%
Marks Obtained **499/500**



Arjun Dhar
99.80%
Marks Obtained **499/500**

Marks **500**
9 Students

Marks **499**
& above
20 Students

Marks **495**
& above
177 Students

Marks **450**
& above
6509 Students

CALL (TOLL-FREE): 1800-102-2727
VISIT: aakash.ac.in

Admissions Open
NEET | JEE | Foundation
For Class 8th-12th

NEET 2025 Wasn't Easy. Our Results Say Otherwise.

5 AAKASHIANS IN TOP 10 AIR NEET(UG) 2025



OUR NATIONAL TOPPERS IN NEET (UG) 2025



Our Problem *Solvers* shine bright in **JEE (Advanced) 2025**

Our Top 100 AIR



> Aakashians Create History in International Olympiads

(Classroom Program Students)



Dhruv Advani

IBO 2023



Gold Medalists

34th International Biology Olympiad



Rohit Panda



Chirag Falor



International Olympiad on
Astronomy & Astrophysics



Dhiren Bhardwaj



32nd International
Biology Olympiad



Anshul



32nd International
Biology Olympiad



Amritansh Nigam



33rd International
Biology Olympiad



Prachi Jindal



33rd International
Biology Olympiad



Tanishka Kabra



54th International
Chemistry Olympiad

420

Classroom Students
Qualified in
NSEs* 2024-25

1484 Students Scored Above MAS

(Group A & B)
49
NSEA*

(Group A & B)
229
NSEB*

(Group A & B)
70
NSEC*

(Group A & B)
38
NSEP*

34
NSEJS*

Aakashians Qualified for INO-2025



Krishna Agrawal
NSEA | NSEP | NSEC



Mohit Shekher Shukla
NSEA | NSEP | NSEC



Utkarsh Awadhiya
NSEB | NSEP | NSEC



Rupayan Pal
NSEC | NSEP | NSEP



Devansh Garg
NSEJS



Aaron Thakkar
NSEJS

*NSEA-National Standard Examination in Astronomy | NSEB-National Standard Examination in Biology | NSEC-National Standard Examination in Chemistry
NSEP-National Standard Examination in Physics | NSEJS-National Standard Examination in Junior Science | INO-Indian National Olympiad

and many more...

Aakashians Qualified for RMO 2024

899

Classroom Students

Qualified
in IOQM
2024



Joish Achyuta
Class - VIII



Dhanush Damu
Class - IX



Arnav Singh
Class - X



Pranit Goel
Class - XI



Aayush Agarwal
Class - XII

and many more...

Aakashians Qualified for INMO 2025

161

Classroom Students

Qualified
in RMO 2024-25



Kotha D Reddy
Reg. No. 00006657265



Abhipraya Verma
Reg. No. 00010407513



Aditya Singh
Reg. No. 00012631688



Rujul Garg
Reg. No. 00005153903



Mohit Shekher Shukla
Reg. No. 00006093814

and many more...

Aakashians Qualified for OCSC/IMOTC-2025

25

Classroom Students

Qualified
in INOs 2025



Pranit Goel
Qualified INMO



Harshit Singh
Qualified INJSO



Subhrojit Paul
Qualified INBO



Mohit Shekher Shukla
Qualified INChO



Rujul Garg
Qualified INPhO



Aditya Singh
Qualified INAO Jr

and many more...

Aakashians Qualified for Merit Certificate

1019

Classroom Students

Qualified
in IMO (Level-I)
2023-24



Intl.
Rank
1

Prisha Miglani
Class - IX



Intl.
Rank
2

Sushant Agarwal
Class - X



Intl.
Rank
4

Ekaashar Gupta
Class - IX



Intl.
Rank
7

Harshit Singh
Class - VIII

438

Classroom Students

Qualified
in IMO (Level-II)
2024

and many more...

Aakashians Qualified for Merit Certificate

4902

Classroom Students

Qualified
in NSO (Level-I)
2024-25



Intl.
Rank
2

Meghav Ladani
Class - X



Intl.
Rank
2

Anubhab Manna
Class - VIII



Intl.
Rank
3

Arnav Gupta
Class - IX



Intl.
Rank
7

Parshti Bajpai
Class - IX



Intl.
Rank
10

Shreya
Class - VIII

and many more...