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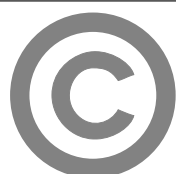
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**SYLLABUS
COVERED**

Agniveer Navy - SSR



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PREFACE

In the vast expanse of the maritime domain, where the rhythmic waves echo tales of courage and commitment, the Agniveer Navy - Senior Secondary Recruits (SSR) examination sets sail as a beacon of knowledge and inspiration.

The Government had launched Agnipath scheme on June 15, 2022 to recruit both male and female aspirants into 'below the officer's rank' cadre of the three services for a period of four years as Agniveers. Candidates between the age group of 17.5 to 21 years are eligible to apply for the scheme.

In 2023, 9 Lacs students appeared for Agniveer Navy SSR exam, this presents an excellent chance for individuals with aspirations to serve the nation by joining the Indian Navy, the opportunity you get from the Indian Navy is just limitless, which helps in enhancing your personality traits.

The Agniveer Navy-SSR - Chapter-Wise book has been meticulously curated to serve as an essential tool in your quest to succeed in the Agnipath Scheme and aims to make aspirants exam-ready, boost their confidence and help them achieve better results in the examination.

Some Benefits of studying from Oswaal Agniveer Navy-SSR– Chapter-wise Question bank is:

1. **Concept Clarity** with easy to grasp theory complemented with Solved Examples
2. **Extensive Practice** with more than 1500 new Questions based on latest exam pattern and Two Sample Question Papers.
3. **Crisp Revision** with Mind Maps offering bite-sized and just-in-time revision tool
4. **Expert Tips** helps you get expert knowledge, master & crack Agniveer Navy in first attempt.
5. **Exam insights** with Chapter-wise weightage Analysis, empowering students to be 100% exam ready.
6. **Quick & Easy Techniques** the book offers Shortcuts & easy to follow Tips and Tricks to help readers solve exam questions efficiently.

May your dreams take flight, and may your journey be as rewarding as it is challenging. Here's to those who dare to dream and to the Agniveer's Navy, where the sky is not the limit but the beginning of a new adventure.



Be mindful. Be grateful. Be positive. Be true. Be kind

01

Three things that make you special

02

Three people you are grateful for and why

03

Three simple things you are grateful for

04

A challenging experience that made you stronger

05

Three ways to inject gratitude into a current challenge

06

Describe the last time you did something nice for someone

07

A fear you have overcome

08

Three activities you enjoy most and why

09

What made you smile today?

10

Three things you love about your family

11

What is your favorite place, and why?

12

Three things you love most about yourself

13

The last time you were overcome with joy

14

A risk you are grateful you took and why

15

Three everyday items you are grateful for

16

Three songs that bring you joy

17

What skill do you have that you are grateful for and why?

18

One luxury you are thankful for

19

Describe a rejection you are grateful for

20

Three things about your body you are grateful for

21

What are you most grateful for in your daily life?

22

Three things you are grateful for about where you live

23

Three items in your home you are grateful for

24

Say thank you to someone

25

Something in nature you are grateful for

26

A person in your past you are grateful for

27

Something at school you're grateful for

28

Describe the last time you laughed so hard you cried

29

What is your proudest accomplishment?

30

Three things you want to manifest



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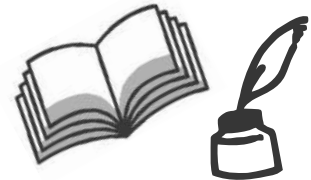
POSITIVE AFFIRMATIONS

An affirmation is a positive statement or phrase that individuals repeat to themselves with the intention of fostering a positive mindset, self-confidence, or personal development. The practice involves affirming desired beliefs or qualities, often in the present tense, to reinforce a positive self-image and encourage a more optimistic outlook.

“ EMBRACE YOUR UNIQUENESS, NOURISH SELF-CARE, AND PRESS FORWARD RELENTLESSLY. TO ACHIEVE FLIGHT, UNLOAD THE BAGGAGE THAT SLOWS YOUR ASCENT.”



I strongly trust in my vision and work diligently towards making it a reality.



I am capable of learning and growing everyday.



I embrace my mistakes, learn from them and use them to fuel my growth & resilience.

I am not defined by grades & test scores. My true worth lies in my character, compassion and positive impact I have on others.



I celebrate my quirks, for they make me beautifully unique.



My voice matters and I believe in the power of my words to shape the world around me.



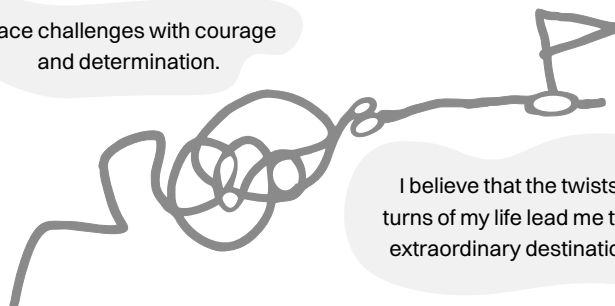
I am not the product of circumstances, I am the product of my own choices.



I face challenges with courage and determination.



I celebrate the achievements of others without diminishing my journey.



I believe that the twists & turns of my life lead me to an extraordinary destinations.

Tips to Crack Agniveer Navy - SSR in the First Attempt

The Indian Navy conducts the Agniveer Navy exam for recruitment of Senior Secondary Recruit (SSR), The Agnipath Scheme was inducted recently and is one of the National Level Examinations in India. Cracking the Agniveer Navy exam in the first attempt, given the difficulty level, is tricky but attainable if done diligently and smartly. Here are some tips that you must follow by heart to crack the exam in the very first attempt:

1 Think Right

Calming yourself and thinking positive is the first and the best course of action that one is required to take. Think and believe that the exam goal is achievable if worked upon smartly.

2 Start studying from the beginning

All the aspirants are aware of how vast, comprehensive and detailed the syllabus of the Agniveer Navy exam is. To crack the exam in the first attempt you have to start preparing for the exam from the beginning of your 10th class. It is only then that you will be able to complete the entire syllabus. Following this approach will also allow you plenty of time to revise.

3 Respect the syllabus and arrange the materials accordingly

While preparing for the Agniveer Navy exam nothing can be labelled as less important. Questions can come from the most unexpected topic too. Laying down your whole syllabus in front of you will help you to decide on the study material you require.

4 Get the right tools and study material

Gathering and preparing from the appropriate study material is something you cannot be ignorant towards. You can refer to Oswaal Books Agniveer Navy Chapter-wise Question Bank to enhance your preparation. This reference book is on the lines of the current syllabus and can be entrusted upon before the examination.

5 Schedule total time for each subject

Creating a schedule which gives due time to all the subjects is a must. Giving proper time to all the subjects daily will help you cover the syllabus on time, giving you enough time for revision.

6 Understand the concepts

No one can crack the Agniveer Navy Exam just by mugging up all the concepts and topics. The syllabus of the exam is in-depth such that you need to understand every concept.

7 Practice a lot of Sample Papers

Agniveer Navy Chapter-wise Question Bank will not only help you in understanding the examination pattern, but they will also help you in figuring out the questions that come up every year and this might give you an edge over other students. You can refer to Oswaal the Agniveer Navy book as it includes all the Examination with solution, Mind Maps, etc. Referring to various sample papers might also help you in comprehending the areas which require more work.

8 Revise whenever you get time

Make sure you revise as much as possible. The revision will help you in keeping the concepts fresh in your mind.

9 Analysing your performance

While you are solving papers, make sure you keep a track of time i.e. how much time does it take to solve one section or one question? Make a report of the sections and type of questions which take minimum and maximum time.

SYLLABUS

Agniveer Navy - SSR

Agniveer Vayu Subjects	Topics
English	Passage, Preposition, Correction of sentences, Change active to passive/passive to active voice Change direct to indirect/indirect to direct, Verbs/Tense/Non Finites, Punctuation Substituting phrasal verbs for expression, Synonyms and Antonyms, Meanings of difficult words Use of adjective, Compound preposition, Determiners (use of a, the, any etc), Use of pronouns
Mathematics	Relations and Functions, Logarithms, Complex Numbers, Quadratics Equations, Sequences and Series, Trigonometry Cartesian System of Rectangular Coordinates, Straight Lines Family of Straight Lines, Circles Conic Section, Permutations and Combinations, Vectors, Exponential and Logarithmic Series, Sets and Set Theory, Statistics Introduction to Three-Dimensional Geometry, Probability Function, Limits and Continuity, Differentiation, Applications of Derivatives Indefinite Integrals Binomial Theorem, Matrices, Determinants, Definite Integrals

Contd....

Science	Physical World and Measurement, Kinematics, Laws of Motion, Work, Energy and Power, Motion o System of Particles and Rigid Body/Gravitation Mechanics of Solids and Fluids, Heat Thermodynamics, Oscillations, Waves, Electrostatics, Current Electricity Magnetic Effect of Current and magnetism, Electromagnetic Induction and Alternating Current, Electromagnetic Waves Optics, Dual Nature of Matter and Radiations, Atomic Nucleus/ Solid and Semi-Conductor Devices, Principles of Communication Metals and Non-Metals, Organic Chemistry, Food, Nutrition and Health, Physiology and Human Diseases, Computer Science
General Awareness	Culture and Religion, Geography : Soil, Rivers, Mountains, Ports, Inland Harbours, Freedom Movement Sports : Championships/Winners/ Terms/ No. of Players, Defence, Wars and Neighbours, current Affairs Important National Facts about India-Heritage, Arts, Dance, History, National—Languages, Bird, Animal, Song, Flag, Monuments, Capitals & Currencies Common Names, Full forms and Abbreviations, Discoveries, Diseases and Nutrition, Award and Authors, Eminent Personalities Spatial, Numerical, Reasoning & Associative Ability, Sequences, Spellings Unscrambling, Coding and Decoding

Scheme of Examination - Agniveer Navy-SSR

Subjects	No. of Questions	Total Marks	Exam Duration
English	25	25	1 hour (60 minutes)
Science	25	25	
Mathematics	25	25	
General Knowledge	25	25	
Total	100	100	

MARKING SCHEME FOR AGNIVEER NAVY-SSR 2024

- (i) For every correct answer, 1 mark shall be awarded.
- (ii) For every wrong answer, 0.25 marks shall be deducted.
- (iii) For questions left blank, 0 mark shall be deducted.

□□□

Eligibility Criteria

Age Criteria	Candidates must have born between 01 May 2002 –31 Oct 2005
Educational Qualifications	- MR: Passed Matriculation Examination from a recognized Board of School Education - SSR: Passed 10+2 Examination from a recognized board with Maths and Physics along with either Computer Science/ Biology/ Chemistry
Nationality	Indian
Number of Attempts	Till the candidates have crossed their maximum age restrictions.
Experience	Previous experience is not required

Education Criteria

Post Name	Educational Qualification
Agniveer (SSR)	Qualified in 10+2 exam with Mathematics, Physics, and at least one of these subjects: Chemistry/Biology/Computer Science from an educational board recognized by Ministry of Education, Govt of India
Agniveer (MR)	Candidate must have passed Matriculation Examination from a recognized Board of School Education

Physical Fitness

Gender	1.6 Km Run	Squats	Push-Ups	Bent Knee Sit Ups
Male	6 minutes 30 sec	20	1	-
Female	8 minutes	15	-	10

Indian Navy Agniveer Medical Standards

Gender	Minimum Height (cms)
Male	157
Female	152

Visual Standards

Particulars	Without Glasses	With Glasses
Better Eye	6/6	6/6
Worse Eye	6/9	6/6

Pay and Perks

Pay, Allowances and Allied Benefits—Agniveers will be paid a customised package of ₹30,000 per month with a fixed yearly increment. In addition, risk and hardship, dress and travel allowances will be paid.

Terminal Benefits—Seva Nidhi Package. Agniveers shall be given a one-time Seva Nidhi package comprising their monthly contribution along with matching contribution by the government on completion of their engagement period, as indicated below:—

Year	Customised Package (Monthly)	In Hand (70%)	Contribution to Agniveers Corpus Fund (30%)	Contribution to Corpus fund by GoI
All figures in Rs (Monthly Contribution)				
1st Year	30,000	21,000	9,000	9,000
2nd Year	33,000	23,100	9,900	9,900
3rd Year	36,500	25,550	10,950	10,950
4th Year	40,000	28,000	12,000	12,000
Total Contribution in Agniveers Corpus Fund after four years			Rs. 5.02 lakh	Rs. 5.02 lakh
Exit after 4 year		Rs. 10.04 Lakhs as Seva Nidhi Package (absolute amount excluding interest)		

Note:

1. Agniveers will not be required to contribute to any Provident Fund of the Government.
2. There shall be no entitlement of gratuity and no pensionary benefits in the case of Agniveers.
3. The 'Seva Nidhi' package will be exempt from Income Tax.

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Elementary Mathematics, English, General Knowledge

NDA-NA Chapter-Wise & Topic-Wise Solved Papers (2014-2023)

Mathematics, General Ability Test: English, General Ability Test: General Studies

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Quantitative Aptitude, Logical Reasoning, General Awareness

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Objective General English

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Objective Quantitative Aptitude

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ROHTAK	HARYANA Manish Traders, 9812556687, Swami Kitab Ghar, 9355611088, Babu Ram Pradeep Kumar, 9813214692
REWARI	Sanjay book depot, 9255447231
BALLABGARH	Kashi Ram Kishan Ial, 9289504004, 8920567245
HISAR	Natraj Book Distributors, 7988917452
BHUNA	Khurana Book Store, 9896572520
JAMMU	Sahitya Sangam, 9419190177
JHARKHAND	Bokaro Student Friends, (0654) 2233094, 7360021503, Bharati Bhawan Agencies, 9431740797
BOKARO	Crown Book Distributor & Publishers, (0651) 2213735, 9431173904, Pustak Mandir, 9431115138, Vidyarthi Pustak Bhandar, 9431310228
RANCHI	KARNATAKA Renuka Book Distributor, (0836) 2244124, Vidyamandir Book Distributors, 9980773976
DUMKA	Krishna book house, 9739847334, Hema Book Stores, 9986767000,
HUBLI	Sapna Book House Pvt. Ltd., 9980513242, Hema Book World, (Chamrajpet) (ISC) 080-40905110, 9945731121
BANGLORE	Chatinya book centre, 9886064731
BELLERI	KERALA Academic Book House, (0484) 2376613, H & C Store, 9864196344, Surya Book House, 9847124217, 9847238314
ERNAKULAM	Book Centre, (0481) 2566992
KOTTAYAM	Academic Book House, (0471) 2333349, 9447063349, Ponni Book Stall, 9037591721
TRIVANDRUM	Aman Book Stall, (0495) 221282,
CALICUT	MADHYA PRADESH Pustak Bhawan, (E & C), 8982150100
CHHINDWARA	Agarwal Book Depot, 9425116210
GWALIOR	

INDORE	Bhaiya Industries, 9893326853, Sushil Prakashan,(0731) 2503333, 2535892, 9425322330, Bhaiya Store, 9425318103, Arun Prakashan, 9424890785, Bhaiya Book Centre, 9424081874, Seva Suppliers, 9826451052
JABALPUR	Vinay Pustak Sadan, 8962362667, Anand Books and Stationers, 9425323508
SAGAR	Princi Book Depot, Sagar, 9977277011
KATNI	Shri Mahavir Agency, 9425363412
UJJAIN	Shreenath Book Depot, 9827544045
BHOPAL	Gupta Brother, 9644482444
PUNE	MAHARASHTRA Natraj Book Depot, (020) 24485054, 9890054092, Vikas Book House, 9921331187, Pravin Sales, 9890683475, New Saraswati Granth Bhandar, 9422323859, Akshar Books & Stationary, 7385089789, Vardhaman Educational, 9860574354, Yash Book Centre, 9890156763, Pragati Book Centre, (ISC), 9850039311, Praveen Sales, Pragati Book Centre, Pune (E & C), 9850039311
AURANGABAD	Shree Sainath Agencies, 7350294089, Maya Book Centre, (ISC), 9372360150
MUMBAI	Vidyarthi Sales Agencies, 9819776110, New Student Agencies, 7045065799, Shivam Books & Stationery, 8619805332
JALGAON	Sharma Book Depot & Stat. (ISC), 9421393040
LATUR	Yash Book House, 9637936999, Shri Ganesh Pustakalay, 9730172188
KOLHAPUR	Granth the Book World, 9922295522
NAGPUR	Laxmi Pustakalay and Stationers, (0712) 2727354, Vijay Book Depot, 9860122094
NANDED	Renuka Book distributor, 9765406133, Novelty Book Depot, 9657690220, Karamveer Book Depot, 9923966466, Arun Book & Stationers, 9423110953
NASHIK	Abhang Pustakalaya, 9823470756/9175940756
DHULE	Rahul Book Centre, 9970849681, New India Book House, 9623123458
YAVATMAL	Navjeevan Book Stall, 7020525561
VASAI	Shri Ganesh Pustkalaya, 9423131275
ODISHA	Prime Book Centre, Vasai, 9890293662
CUTTACK	A. K. Mishra Agencies, 9437025991, 9437081319
BHUBANESHWAR	M/s Pragnya, 8847888616, 9437943777, Padmalaya, 9437026922, Bidyashree, 9937017070, Books Godown, 7894281110
BARIPADA	Trimurti Book World, 9437034735
KEONJHAR	Students corner, 7008435418
PUNJAB	Bharat Book Depot, 7988455354
AMBALA	Goel Sons, 9463619978, Adarsh Enterprises, 9814347613
PATIALA	Cheap Book Store, 9872223458, 9878258592, City Book Shop, 9417440753, Subhash Book Depot, 9876453625, Paramvir Enterprises, 9878626248
JALANDHAR	Sita Ram book Depot, 9463039199, 7696141911
FEROZPUR	Amit Book, 9815807871, Gupta Brothers, 9888200206, Bhatia Book Centre, 9815277131
LUDHIANA	Mohindra Book Depot, 9814920226
CHANDIGARH	RAJASTHAN Laxmi General Store, Ajmer, 0145- 2428942 9460652197
AJMER	Vardhman Book Depot, 9571365020, 8003221190 Raj Traders, 9309232829
KOTA	Nakoda Book Depot, (01482) 243653, 9214983594,
BHILWARA	Alankar Book Depot, 9414707462
JAIPUR	Ravi Enterprises, 9829060694, Saraswati Book House, (0141) 2610823, 9829811155, Goyal Book Distt., 9460983939, 9414782130
UDAIPUR	Sunil Book Store, 9828682260
JODHPUR	Second Hand Book Stall, 9460004745
AGARTALA	TRIPURA Book Corner, 8794894165, 9894657146, Book Emporium, 9089230412
COIMBATORE	TAMIL NADU Majestic Book House, (0422) 2384333, CBSC Book Shop, 9585979752
CHENNAI	Arraba Book Traders, (044) 25387868, 9841459105, M.R. Book Store (044) 25364596, Kalaimagal Store, (044) 5544072, 9940619404, Vijaya Stores, 9381037417, Bookmark It-Books & Stat. Store, 7305151653, M.K. Store, 9840030099, Tiger Books Pvt. Ltd., 9710447000, New Mylai Stationers, 9841313062, Prince Book House, Chennai, 0444-2053926, 9952068491, S K Publishers & Distributors, 9789865544, Dharma Book Shop, 8667227171
PUDUCHERRY	Sri Lakshmi Book Seller, 7871555145
SALEM	Pattu book centre, 9894816280
TRICHY	P.R.Sons Book Seller, 9443370597, Rasi Publication, 9894816280
THENI	Maya Book Centre, 9443929274
MADURAI	Selvi Book Shoppe, 9843057435, Jayam Book Centre, 9894658036
VELLORE	G.K book centre and collections, 9894517994
HYDERABAD	TELANGANA Sri Balaji Book Depot, (040) 27613300, 9866355473, Shah Book House, 9849564564
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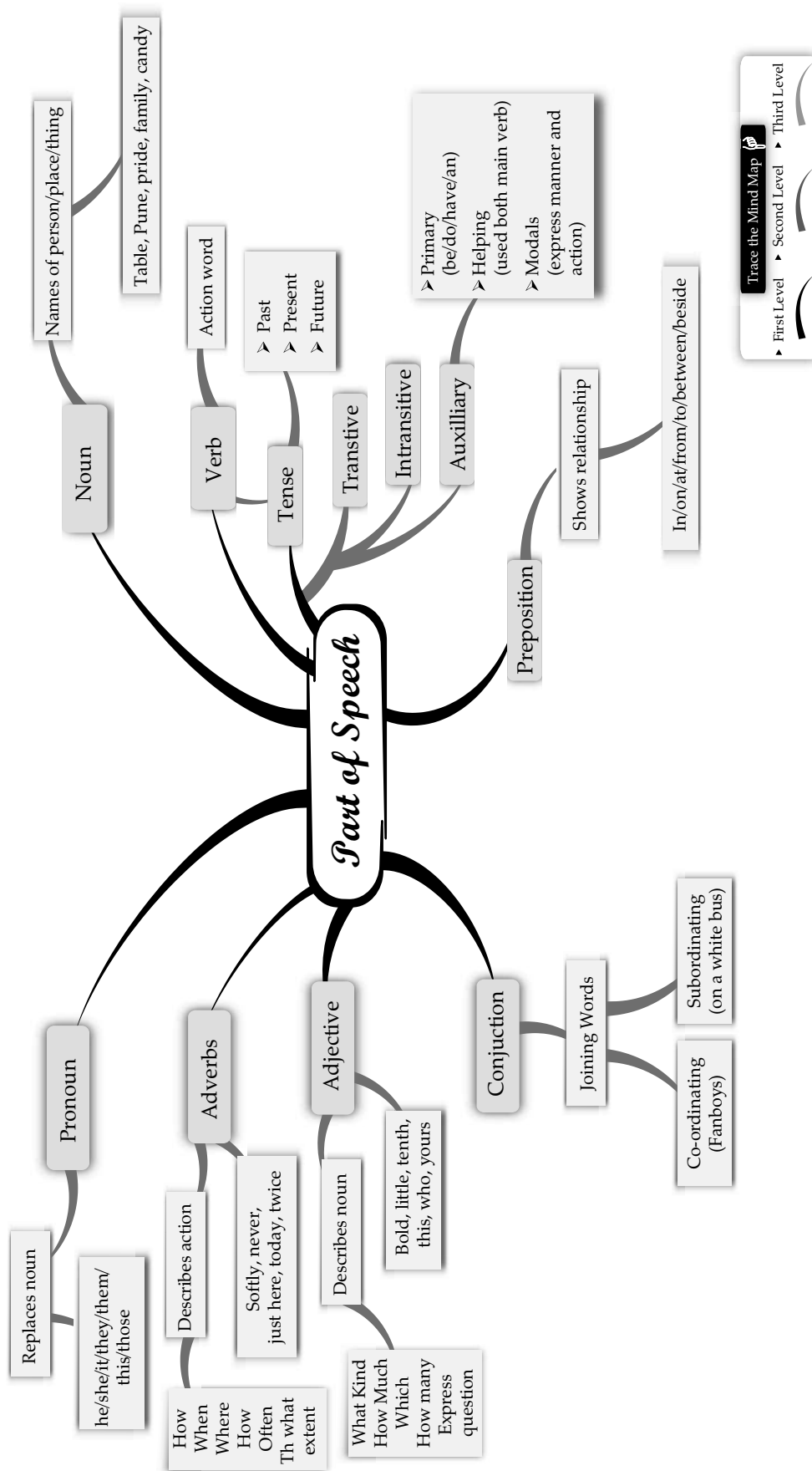
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DEHRADUN	Inder Book Agencies, 9634045280, Amar Book Depot , 8130491477, Goyal Book Store, 9897318047, New National Book House, 9897830283/9720590054	JHANSI	Bhanu Book Depot, 9415031340
MUSSORIE	Ram Saran Dass Chanda kiran, 0135-2632785, 9761344588	KANPUR	Radha News Agency, 8957247427, Raj Book Dist., 9235616506, H K Book Dis-tributors, 9935146730, H K Book Distributors, 9506033137/9935146730
UTTAR PRADESH		LUCKNOW	Vyapar Sadan, 7607102462, Om Book Depot, 7705871398, Azad Book Depot Pvt. Ltd., 7317000250, Book Sadan, 9839487327, Rama Book Depot(Retail), 7355078254, Ashirwad Book Depot, 9235501197, Book.com, 7458922755, Universal Books, 9450302161, Sheetla Book Agency, 9235832418, Vidyarthi Kendra Publisher & Distributor Pvt Ltd, (Gold), 9554967415, Tripathi Book House, 9415425943
AGRA	Sparsh Book Agency, 9412257817, Om Pustak Mandir, (0562) 2464014, 9319117771, Sanjay Publication, 8126699922 Arti book centre, 8630128856, Panchsheel Books, 9412257962, Bhagwati Book Store, (E & C), 9149081912	MEERUT	Ideal Book Depot, (0121) 4059252, 9837066307
ALLAHABAD	Mehrotra Book Agency, (0532) 2266865, 9415636890	NOIDA	Prozo (Global Edu4 Share Pvt. Ltd), 9318395520, Goyal Books Overseas Pvt.Ltd., 1204655555 9873387003
AZAMGARH	Sasta Sahitya Bhandar, 9450029674	PRAYAGRAJ	Kanhaiya Pustak Bhawan, 9415317109
ALIGARH	K.B.C.L. Agarwal, 9897124960, Shaligram Agencies, 9412317800, New Vimal Books, 9997398868, T.I.C Book centre, 9808039570	MAWANA	Subhash Book Depot, 9760262264
BULANDSHAHR	Rastogi Book Depot, 9837053462/9368978202	WEST BENGAL	
BALRAMPUR	Universal Book Center, 8933826726	KOLKATA	Oriental Publishers & Distributor (033) 40628367, Katha 'O' Kahini, (033) 22196313, 22419071, Saha Book House, (033), 22193671, 9333416484, United Book House, 9831344622, Bijay Pustak Bhandar, 8961260603, Shawan Books Distributors, 8336820363, Krishna Book House, 9123083874
BAREILLY	Siksha Prakashan, 9837829284	RENUKOOT	Om Stationers, 7007326732
HARDOI	Mittal Pustak Kendra, 9838201466	COOCH BEHAR	S.B. Book Distributor, Cooch behar, 9002670771
DEORIA	Kanodia Book Depot, 9415277835	KHARAGPUR	Subhani Book Store, 9046891334
VARANASI	Gupta Books, 8707225564, Bookman & Company, 9935194495/7668899901	SILIGURI	Agarwal Book House, 9832038727, Modern Book Agency, 8145578772
MATHURA	Sapra Traders, 9410076716, Vijay Book House , 9897254292	DINAJPUR	Krishna Book House, 7031748945
FARRUKHABAD	Anurag Book Agencies, 8844007575	MURSHIDABAD	New Book House, 8944876176
NAJIBABAD	Gupta News Agency, 8868932500, Gupta News Agency, (E & C), 8868932500		
DHAMPUR	Ramkumar Mahaveer Prasad, 9411942550		

Entrance & Competition Distributors

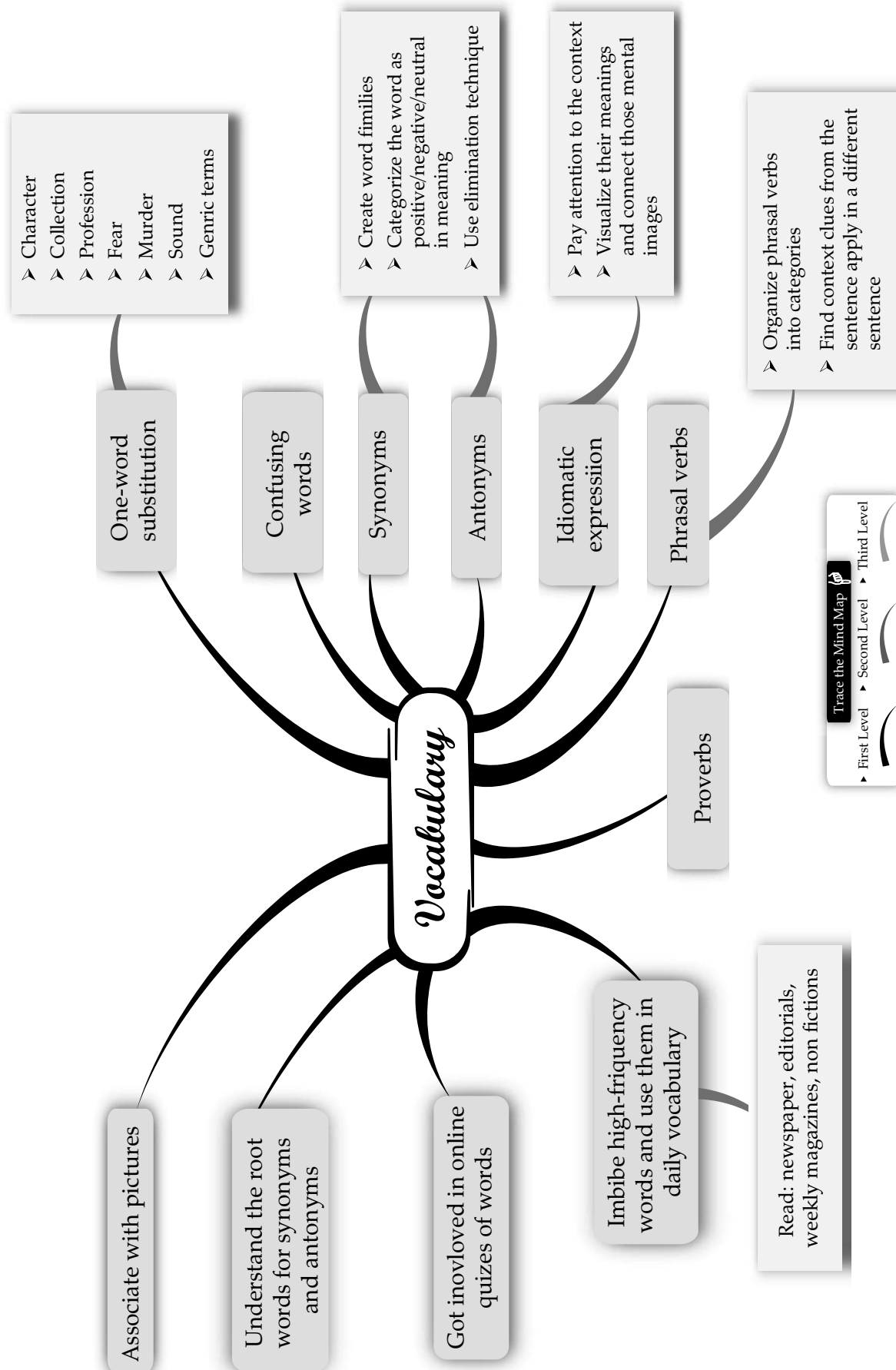
BIHAR		CUTTAK	A.K.Mishra Agencies, 9437025991
PATNA	Metro Books Corner, 9431647013, Alka Book Agency, 9835655005, Vikas Book Depot, 9504780402	BHUBANESHWAR	M/s Pragnya, 9437943777
CHATTISGARH		PUNJAB	
KORBA	Kitab Ghar, 9425226528, Shri Ramdev Traders, 9981761797	JALANDHAR	Cheap Book Store, 9872223458, 9878258592
DELHI		RAJASTHAN	
DELHI	Singhania Book & Stationer, 9212028238, Radhey Book depot, 9818314141, The Book Shop, 9310262701, Mittal Books, 9899037390, Lov Dev & Sons, 9999353491	KOTA	Vardhman Book Depot, 9571365020, Raj Traders, 9309232829
NEW DELHI	Anupam Sales, 9560504617, A ONE BOOKS, 8800497047	JAIPUR	Goyal Book Distributors, 9414782130
HARYANA		UTTAR PRADESH	
AMBALA	Bharat Book Depot, 7988455354	AGRA	BHAGWATI BOOK STORE, 9149081912, Sparsh Book Agency, 9412257817, Sanjay Publication, 8126699922
JHARKHAND		ALIGARH	New Vimal Books, 9997398868
BOKARO	Bokaro Student Friends Pvt. Ltd, 7360021503	ALLAHABAD	Mehrotra Book Agency, (532) 2266865, 9415636890
MADHYA PRADESH		GORAKHPUR	Central Book House, 9935454590
INDORE	Bhaiya Industries, 9109120101	KANPUR	Raj Book Dist, 9235616506
CHHINDWARA	Pustak Bhawan, 9827255997	LUCKNOW	Azad Book Depot PVT LTD, 7317000250, Rama Book Depot(Retail), 7355078254, Ashirwad Book Depot , 9235501197, Book Sadan, 8318643277, Book.com , 7458922755, Sheetla Book Agency, 9235832418
MAHARASHTRA		PRAYAGRAJ	Format Center, 9335115561, Garg Brothers Trading & Services Pvt. Ltd., 7388100499
NAGPUR	Laxmi Pustakalay and Stationers, (0712) 2727354	UTTAR PRADESH	
PUNE	Pragati Book Centre, 9850039311	DEHRADUN	Inder Book Agencies, 9634045280
MUMBAI	New Student Agencies LLP, 7045065799	WEST BENGAL	
ODISHA		KOLKATA	Bijay Pustak Bhandar Pvt. Ltd., 8961260603, Saha Book House, 9674827254, United Book House, 9831344622, Techno World, 9830168159
BARIPADA	Trimurti Book World, 9437034735		

MINDMAPS

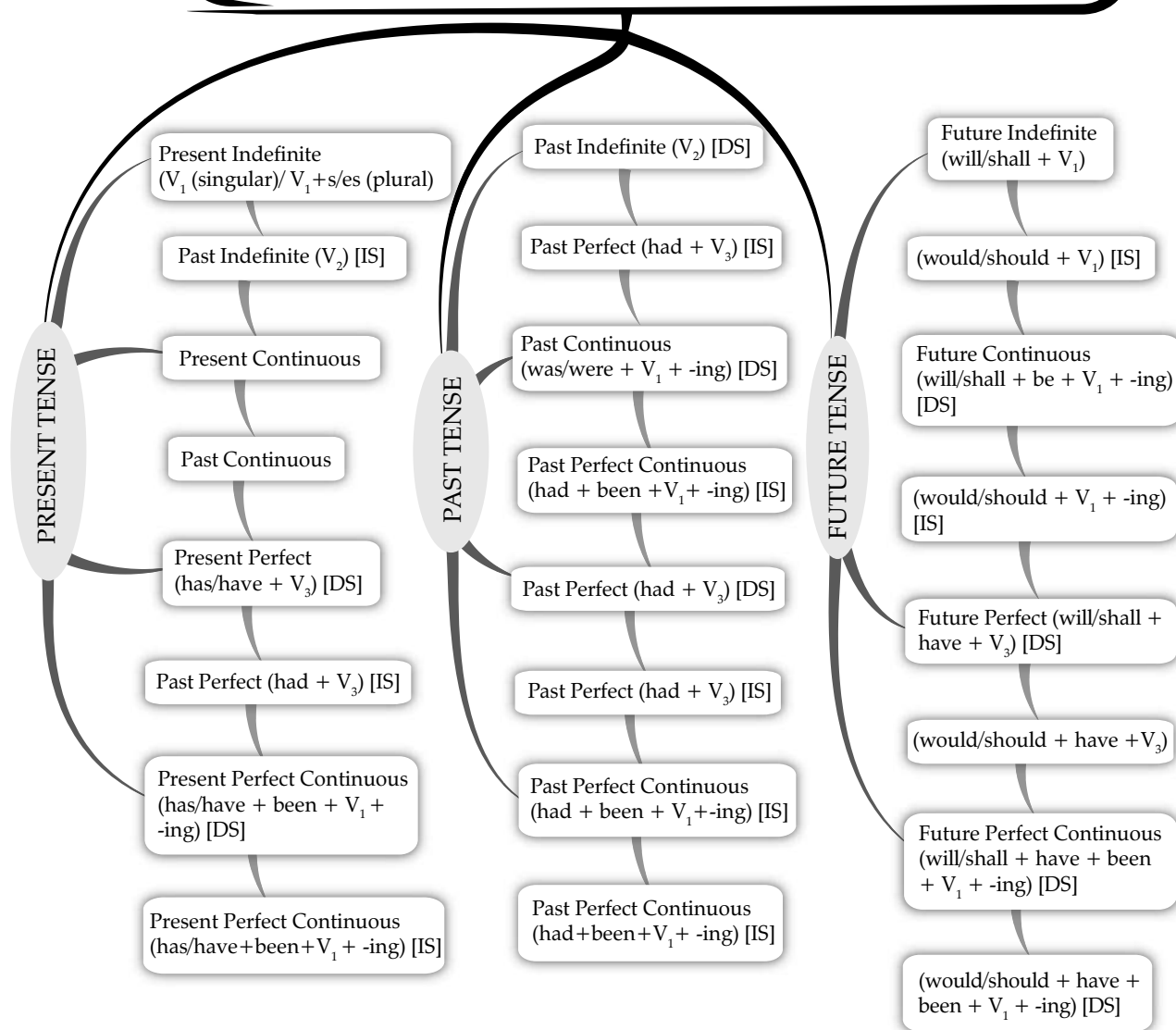


Trace the Mind Map

► First Level ► Second Level ► Third Level



Change of Tense of Verbs of Direct Narration

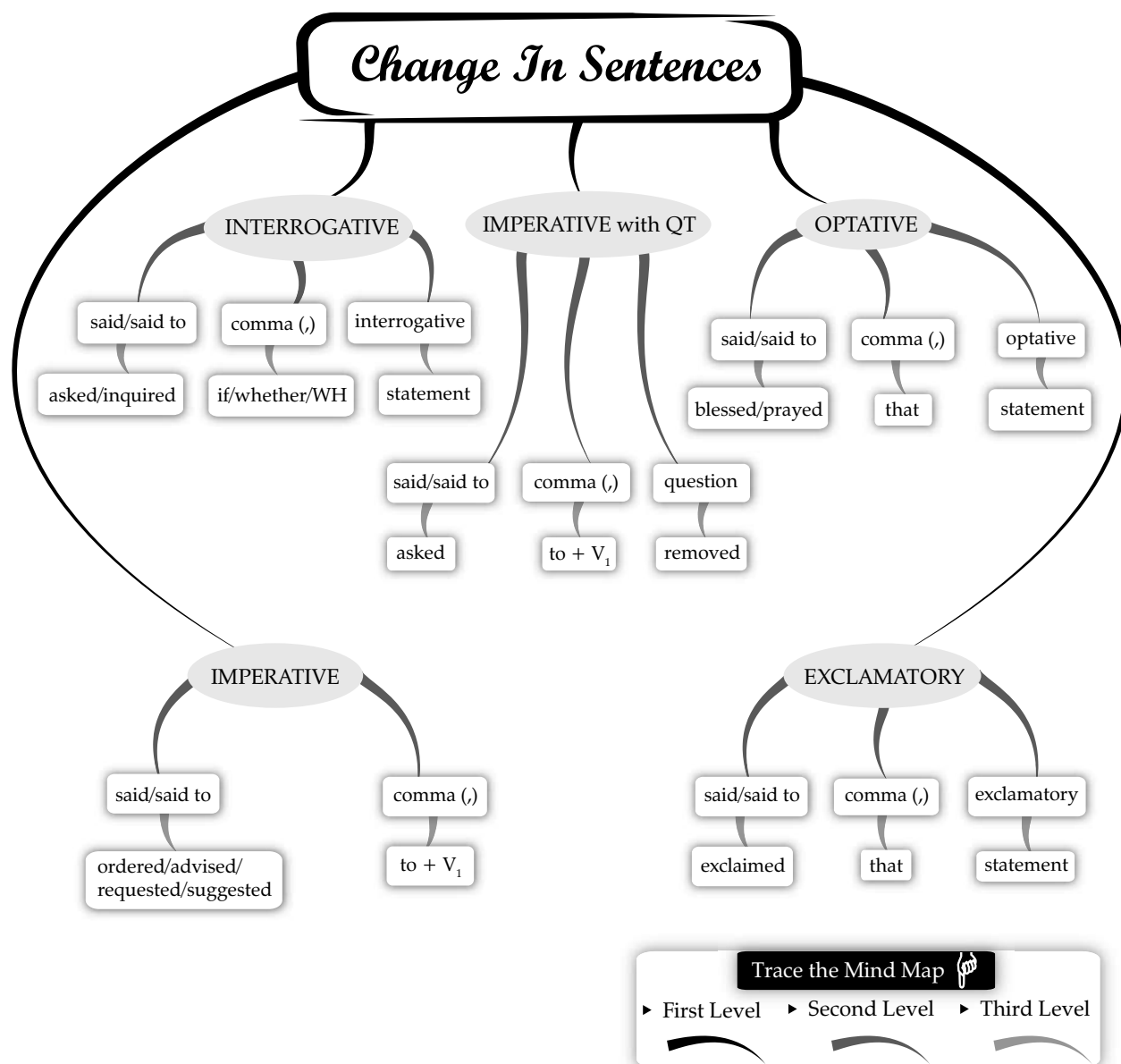


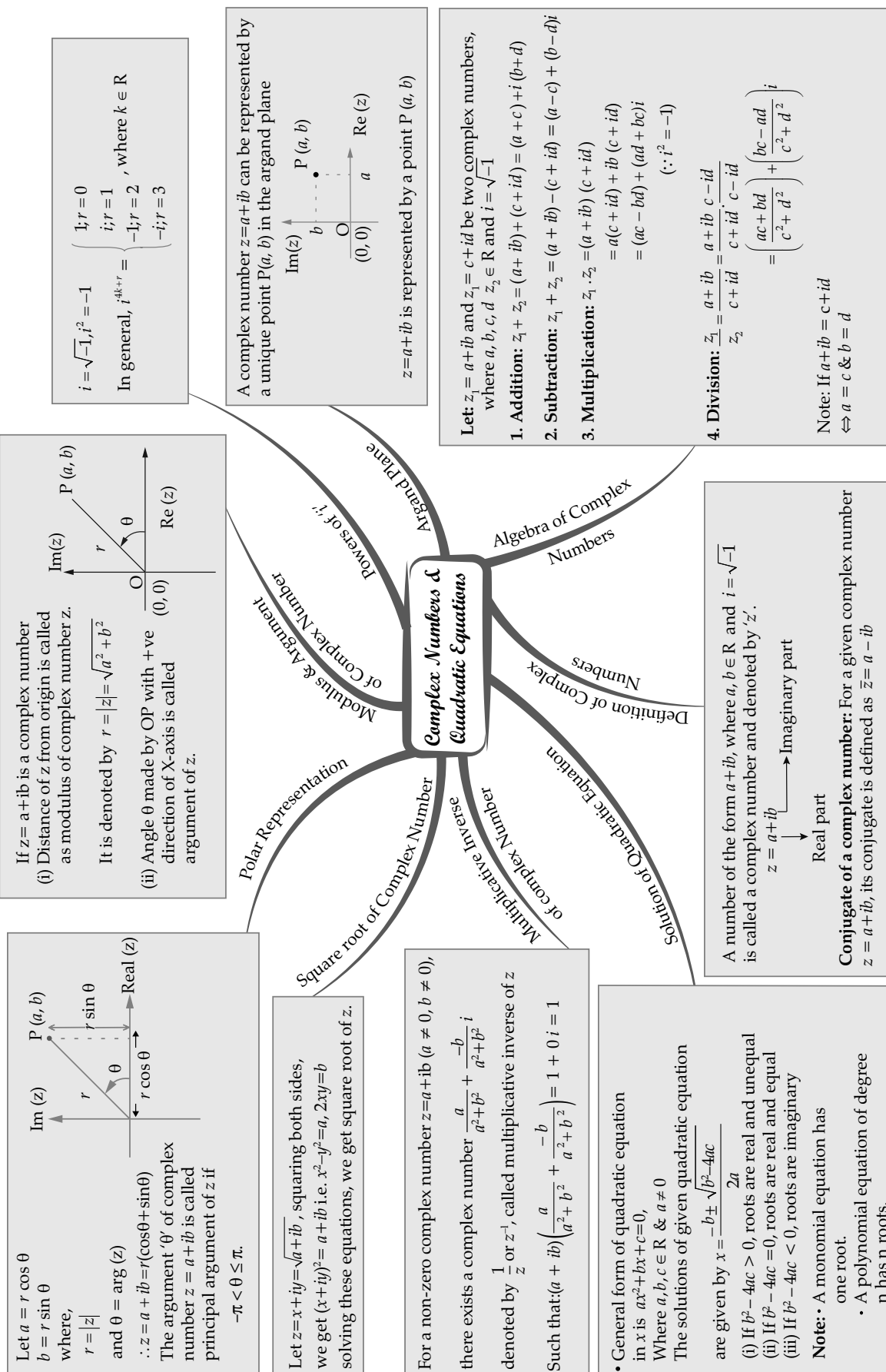
Note :

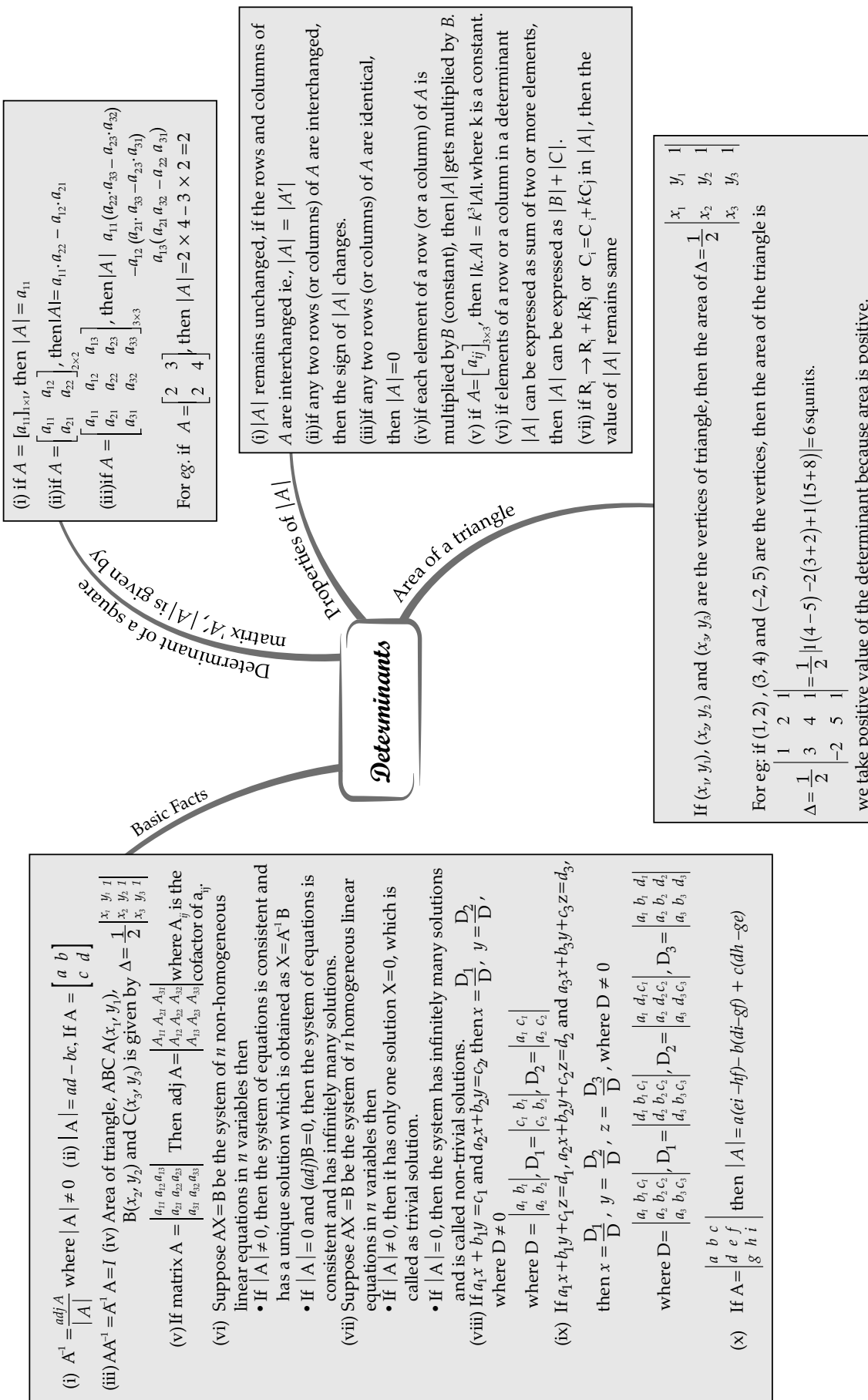
- DS – Direct Sentence
- IS – Indirect Sentence

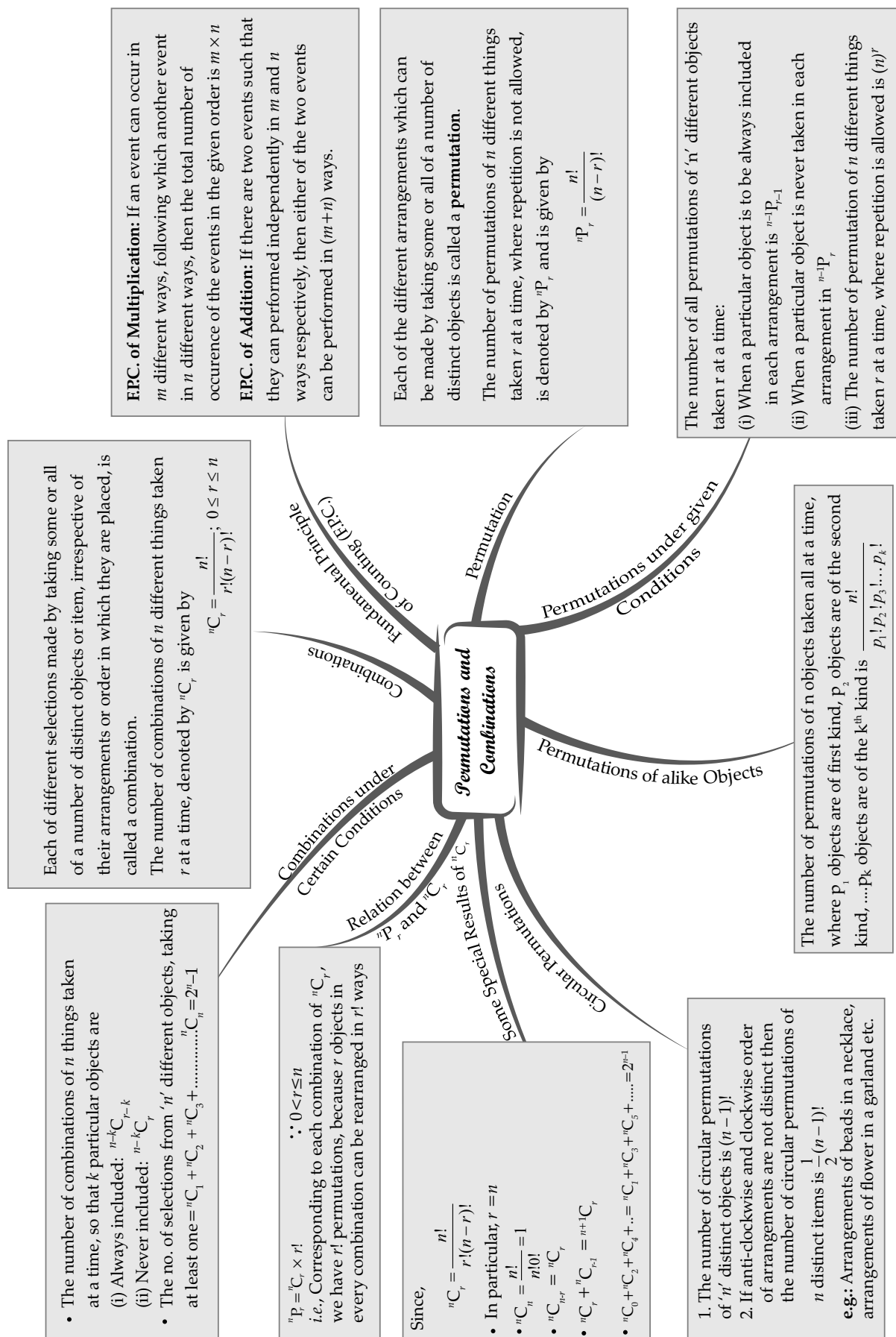
Trace the Mind Map

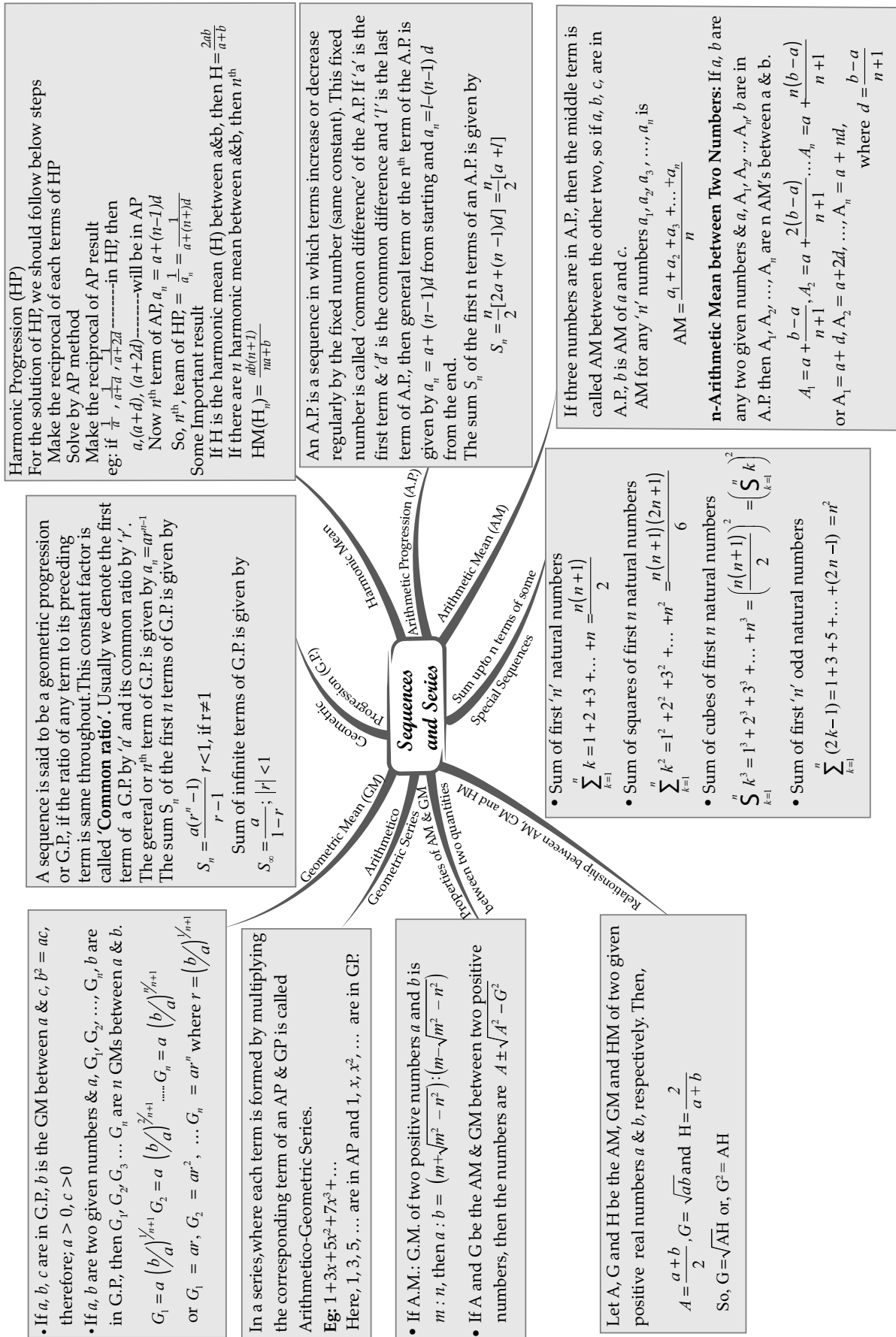
- First Level
- Second Level
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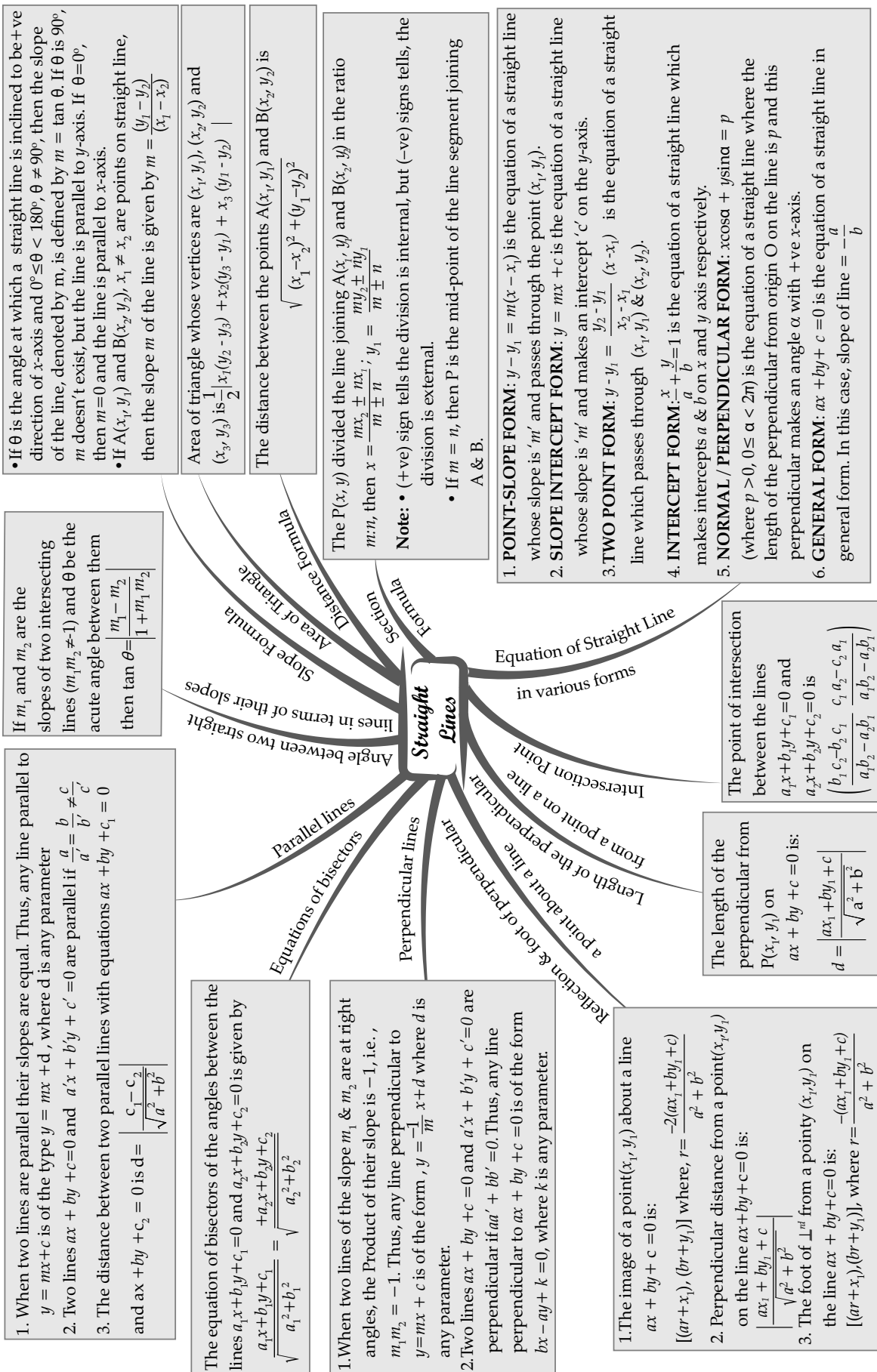






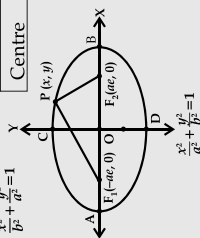
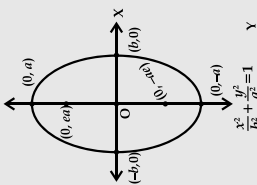






- An ellipse is the set of all points in a plane, that the sum of their distances from two fixed points in the plane is constant.
- The two fixed points are called the 'foci' of the ellipse.
- The mid-point of line segment joining foci is called the 'centre' of the ellipse.
- The line segment through the foci of the ellipse is called 'major axis'.
- The line segment through centre & perpendicular to major axis is called minor axis.

Forms of ellipse	$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$
Equation of major axis	$a > b$ $y = 0$ $x = 0$
Length of major axis	$2a$
Equation of Minor axis	$x = 0$ $y = 0$
Length of Minor axis	$2b$
Directrices	$x = \pm \frac{a}{e}$ $y = \pm \frac{a}{e}$
Equation of latus rectum	$x = \pm ae$ $y = \pm ae$
Length of latus rectum	$\frac{2b^2}{a}$
Centre	$(0, 0)$

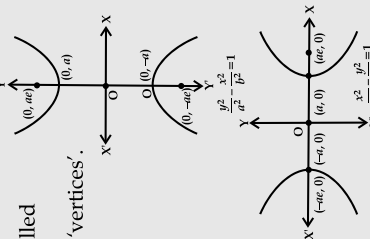


Here, $a > b$ and $b^2 = a^2(1 - e^2)$, $e < 1$

Conic Sections

- A hyperbola is the set of all points in a plane, that the difference of whose distances from two fixed points in the plane is a constant.
- The two fixed points are called the 'foci' of the hyperbola.
- The mid-point of the line segment joining the foci is called the 'centre' of the hyperbola.
- The line through the foci is called 'transverse axis'.
- Line through centre and perpendicular to transverse axis is called 'conjugate axis'.
- Points at which hyperbola intersects transverse axis are called 'vertices'.

Forms of the hyperbola	$\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$
Equation of transverse axis	$y = 0$ $x = 0$
Equation of conjugate axis	$x = 0$ $y = 0$
Length of transverse axis	$2a$
Foci	$(\pm ae, 0)$ $(0, \pm ae)$
Equation of latus rectum	$x = \pm ae$ $y = \pm ae$
Length of latus rectum	$\frac{2b^2}{a}$
Centre	$(0, 0)$

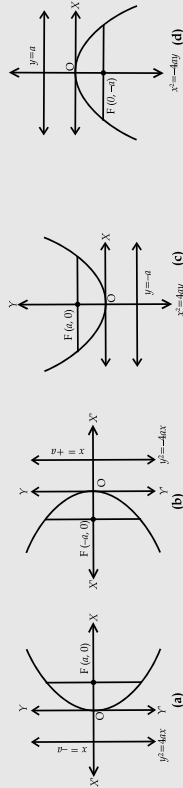


Here, $b^2 = a^2(e^2 - 1)$, $e > 1$

- A parabola is the set of all points in a plane that are equidistant from a fixed line and a fixed point in the plane. Fixed line is called 'directrix' of parabola. Fixed point F is called the 'focus'. A line through focus & perpendicular to directrix is called 'axis'. Point of intersection of parabola with axis is called 'vertex'.

Main facts about the parabola

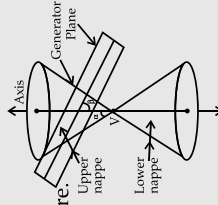
Forms of Parabolas	$y^2 = 4ax$	$y^2 = -4ax$	$x^2 = 4ay$	$x^2 = -4ay$
Axis	$y = 0$	$y = 0$	$x = 0$	$x = 0$
Directrix	$x = -a$	$x = a$	$y = -a$	$y = a$
Vertex	$(0, 0)$	$(0, 0)$	$(0, 0)$	$(0, 0)$
Focus	$(a, 0)$	$(-a, 0)$	$(0, a)$	$(0, -a)$
Length of latus rectum	$4a$	$4a$	$4a$	$4a$
Equations of latus rectum	$x = a$	$x = -a$	$y = a$	$y = -a$



Definition

Circles, ellipses, parabolas and hyperbolas are known as conic sections because they can be obtained as intersections of plane with a double napped right circular cone α . From the given figure.

- (i) Section will represent circle, if $\beta = 90^\circ$
- (ii) Section will represent an Ellipse, if $\alpha < \beta < \pi/2$
- (iii) Section will represent a parabola if $\alpha = \beta$
- (iv) Section will represent a hyperbola if $0 \leq \beta < \alpha$



A circle is a set of all points in a plane that are equidistant from a fixed point in the plane. The fixed point is called the 'centre' of the circle and the distance from the centre to a point on the circle is called the 'radius' of the circle.

The equation of a circle with centre (h, k) and the radius r is

$$(x-h)^2 + (y-k)^2 = r^2$$

The general equation of circle is $x^2 + y^2 + 2gx + 2fy + c = 0$

its centre is $(-g, -f)$ and radius $r = \sqrt{g^2 + f^2 - c}$

Three Dimensional Geometry-I

Introduction

Distance between Two Points

Coordinates of the Centroid of a Triangle

Coordinates of a Midpoint

The coordinates of the centroid of the triangle, whose vertices are (x_1, y_1, z_1) , (x_2, y_2, z_2) and (x_3, y_3, z_3) are $\left(\frac{x_1 + x_2 + x_3}{3}, \frac{y_1 + y_2 + y_3}{3}, \frac{z_1 + z_2 + z_3}{3}\right)$.

e.g.: The centroid of a triangle ABC is at the point (1, 1, 1). If the coordinates of A and B are (3, -5, 7) and (-1, 7, -6), respectively, find the coordinates of the point C.

Sol: Let the coordinates of C be (x, y, z) and the coordinates of the centroid G be (1, 1, 1). Then $\frac{x+3-1}{3} = 1$, i.e., $x = 1$;

$$\frac{y-5+7}{3} = 1, \text{ i.e., } y = 1;$$

$$\frac{z+7-6}{3} = 1, \text{ i.e., } z = 2. \text{ So, } C(x, y, z) = (1, 1, 2)$$

Section Formula

The coordinates of the point R which divides the line segment joining two points $P(x_1, y_1, z_1)$ and $Q(x_2, y_2, z_2)$ internally and externally in the ratio $m : n$ are given by

$$\left(\frac{mx_2 + nx_1}{m+n}, \frac{my_2 + ny_1}{m+n}, \frac{mz_2 + nz_1}{m+n}\right) \quad \& \quad \left(\frac{mx_2 - nx_1}{m-n}, \frac{my_2 - ny_1}{m-n}, \frac{mz_2 - nz_1}{m-n}\right)$$

respectively.

e.g.: Find the coordinates of the point which divides the line segment joining the points (1, -2, 3) and (3, 4, -5) in the ratio 2 : 3 internally.

Sol : Let $P(x, y, z)$ be the point which divides line segment joining A (1, -2, 3) and B (3, 4, -5) internally in the ratio 2 : 3. Therefore,

$$x = \frac{2(3) + 3(1)}{2+3} = \frac{9}{5} \quad y = \frac{2(4) + 3(-2)}{2+3} = \frac{2}{5} \quad z = \frac{2(-5) + 3(3)}{2+3} = \frac{-1}{5}$$

Thus, the required point is $\left(\frac{9}{5}, \frac{2}{5}, \frac{-1}{5}\right)$.

The coordinates of the midpoint of the line segment joining two points

$$P(x_1, y_1, z_1) \text{ and } Q(x_2, y_2, z_2) \text{ are } \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}, \frac{z_1 + z_2}{2}\right).$$

e.g.: Find the midpoint of the line joining two points $P(1, -3, 4)$ and $Q(-4, 1, 2)$.

Sol: Coordinates of the midpoint of the line joining the points P & Q are $\left(\frac{1-4}{2}, \frac{-3+1}{2}, \frac{4+2}{2}\right)$ i.e. $\left(\frac{-3}{2}, -1, 3\right)$

- In three dimensions, the coordinate axes of a rectangular cartesian coordinate system are three mutually perpendicular lines. The axes are called x , y and z -axes.
- The three planes determined by the pair of axes are the coordinate planes, called xy , yz and zx -planes.
- The three coordinate planes divide the space into eight parts known as octants.

• The coordinates of a point P in 3D Geometry is always written in the form of triplet like (x, y, z) . Here, x , y and z are the distances from yz , zx and yx planes, respectively.

e.g.: • Any point on x -axis is : $(x, 0, 0)$

• Any point on y -axis is : $(0, y, 0)$

• Any point on z -axis is : $(0, 0, z)$

Distance between two points $P(x_1, y_1, z_1)$ and $Q(x_2, y_2, z_2)$ is given by

$$PQ = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2 + (z_2 - z_1)^2}$$

e.g.: Find the distance between the points $P(1, -3, 4)$ and $(-4, 1, 2)$.

Sol: The distance PQ between the points P & Q is given by

$$PQ = \sqrt{(-4-1)^2 + (1+3)^2 + (2-4)^2} \\ = \sqrt{25+16+4} = \sqrt{45} = 3\sqrt{5} \text{ units}$$

