PRATAP INTERNATIONAL SCHOOL

HOLIDAY HOMEWORK

CLASS XI

Dear Parents,

It is summer vacation time again, a time to relax as well as fruitfully occupy the children in various scholastic and co-scholastic areas. Keeping this in mind, our teachers have painstakingly designed interesting Projects / Assignments for children to be completed during the summer vacation. This would encourage in-depth learning, strengthen concepts and prepare ground for improved academic output.

As parents, kindly motivate and lend support to your children and ensure that they complete the given work well-in-time and to the best of their ability. Your encouragement can actually make a huge difference to the ultimate learning outcome of these projects. We would be happy if parents encourage children to work on their own.

Please note the following :-

- Make your child read Hindi and English story books and children's Science magazines as much as possible so that each child can contribute to the school magazine in some way or the other.
- Encourage them to undertake creative writing, both in Hindi and English. You can tell them to write their experiences about the vacation and maintain a daily diary too. Even watching good English movies / plays can be an enjoyable learning experience.
- To make them aware of their surroundings, tell them to watch various informative T.V. Channels like Discovery, National Geographic, History and Animal Planet.
- To enhance their creative talent, motivate them to draw / paint, make PPT presentations on any family celebration or any activity / place / concept that interests them.
- Last but not the least, practise English and Hindi handwriting.
- Let these assignments / projects be fun filled so that learning is always a pleasurable activity for our young children.

We look forward to your co-operation.

HAPPY HOLIDAYS!

Headmistress **Principal**

CLASS XI PHYSICS

HOLIDAY HOMEWORK

SESSION: 2020-2021

1. Read and learn Integration Formulas

2. Do the attached exercises related to integration formulas

Fundamental Formulae of Integration

1. $\int dx = x \left[\because \frac{d}{dx}(x) = 1 \right]$

2. $\int x^n \ dx = \frac{x^{n+1}}{n+1}$ provided $n \neq -1$.

3. $\int x^{-1} dx = \int \frac{1}{x} dx = \log_e x$

4. $\int e^x dx = e^x$

5. $\int e^{ax} dx = \frac{e^{ax}}{\frac{d}{dx}(ax)} = \frac{e^{ax}}{a}$

6. $\int a^x dx = \frac{a^x}{\log_e a}$

7. $\int \sin x dx = -\cos x$

7a. $\int \sin ax dx = \frac{-\cos ax}{\frac{d}{dx}(ax)} = \frac{-\cos ax}{a}$

8. $\int \cos x dx = \sin x$

8a. $\int \cos ax dx = \frac{\sin ax}{a}$

9. $\int \sec^2 x dx = \tan x$

10. $\int \cos ec^2 x \ dx = -\cot x$

11. $\int \sec x \tan x \ dx = \sec x$

12. $\int \cos ecx \cot x \, dx = -\cos ecx$

13. $\int \tan x \ dx = \int \frac{\sin x}{\cos x} dx = -\int \frac{-\sin x}{\cos x} dx = -\log_e \cos x$

14. $\int \cot x \ dx = \int \frac{\cos x \ dx}{\sin x} = \log_e \sin x$

15. $\int \frac{dx}{\sqrt{1-x^2}} = \sin^{-1} x; |x| < 1$

16. $\int \frac{dx}{x\sqrt{x^2-1}} = \sec^{-1} |x|; |x| > 1$

17. $\int \frac{dx}{1+x^2} = \tan^{-1} x$

Theorems of Integration

First Theorem: The integral of the product of *a constant* and a function is equal to the product of the constant and integral of the function.

i.e. $\int c u \, d x = c \int u \, d x$, where c is constant.

Exercise 1.5

Integrate the following functions w.r.t .x,

(i) $\mathbf{x^3}$ **(ii)** $x^2+\frac{1}{x}$ **(iii)** $\mathbf{e^{3x}}$ **(iv)** $\left(x-\frac{1}{x}\right)^2$ **(v)** $\frac{1}{\sqrt{x}}$ **(vi)** $\mathbf{4e^{5x}}$

Definite integral

If

$$\int F(x)dx = f(x)+c$$

Then $\int_a^b F(x)dx = f(b)-f(a)$

Where a and b are called the upper and lower limits of x

Definite integral is illustrated with the following examples.

Exercise 1.6

Solve the following:

(i) $\int_{x=\infty}^{x=R} \frac{GMm}{x^2}dx$ **(ii)** $\int_0^{\pi/2} \cos x\ dx$ **(iii)** $\int_1^2 x^3\ dx$

(iv) $\int_u^v mv\,dv$ **(v)** $\int_{-\pi/2}^{\pi/2} \sin x\ dx$

Exercise 1.7

Solve the following:

(i) $\int_{-\pi/2}^{\pi/2} \cos x\,dx$ **(ii)** $\int_0^Q \frac{q}{C}dq$, ***where C is a constant***

(iii) $\int_{\theta_1}^{\theta} \frac{d\theta}{(\theta-\theta_0)'}$ ***where, θ_0 is a constant***

Pratap International School, Rohini, Delhi

Holidays Homework for Class XI (2020-21)

Subject: History.

History is one of the most important disciplines in school education. It is the study of the past, which helps us to understand our present and shape our future. It promotes the acquisition and understanding of historical knowledge in breath and in depth across cultures.

The course of history in senior secondary classes is to enable to students to know that history is a critical discipline, a process of enquiry, a way of knowing about the past rather than just a collection of facts. The syllabus helps them to understand the process, through which a historian collects, chooses, scrutinizes and assembles different types of evidences to write history.

The syllabus in class-XI is organized around some major themes in world history. In class XII the focus shifts to a detailed study of some themes in ancient, medieval and modern Indian history. CBSE has decided to introduce project work in history for classes XI and XII in 2013-14 as a part of regular studies in classroom, as project work gives students an opportunity to develop higher cognitive skills.

It takes students to a life beyond text books and provides them a platform to refer materials, gather information, analyze it further to obtain relevant information and decide what matter to keep and hence understand how history is constructed.

A. Objectives of Project Work :

Project work will help students:-

- ✓ To develop skills to gather data from a variety of sources investigate diverse viewpoints and arrive at logical deductions.
- ✓ To develop skills to comprehend, analyze, interpret, evaluate historical evidence and also understand the limitations of historical evidence.
- ✓ To develop 21st century managerial skills of co-ordination, self-direction and time management.
- ✓ To give a multidisciplinary approach to topics.
- ✓ To learn to work on diverse cultures, races, religions and lifestyles.
- ✓ To learn through constructivism a theory based on observation and scientific study.
- ✓ To inculcate a spirit of inquiry and research.
- ✓ To communicate data in the most appropriate form using a variety of techniques.
- ✓ To provide greater opportunity for interaction and exploration.
- ✓ To understand contemporary issues in context to our past.

B. Assessment of the Project Work

Sl No	Allocation of Marks	Division of Marks
1	Project synopsis	2 Marks
2	Data/Statistical analysis/Map work	3 Marks
3	Visual/overall presentation	5 Marks
4	Analysis/explanation and interpretation	5 Marks

5	Bibliography	1 Marks
6	Viva	4 Marks
Total Marks		**20**

Make a Project on any one Civilization of the world.

i. Indus Valley Civilization.
ii. Mesopotamian Civilization.
iii. Egyptian Civilization.
iv. Chinese Civilization.

With special reference to the following aspects:

- Source available.
- Extent of the civilization.
- Reason for the decline.
- Compare the Indus Valley Civilization towards the Mesopotamia on the basis of their town planning.

General Instructions:

1. Project can be individual/ pair/ group of 4-5 each.
2. It should be a handwritten project on a A4 size sheet.
3. Project should be summed up in 10-15 pages. (in case of pair and group the no. of pages can exceed to 20-25)
4. It should be well researched based on facts and figures and pictorial.

5. The project must have a Table of contents, Title/ Cover page, Acknowledgement, Bibliography, Analysis with headings and sub-headings.
6. It must include relevant news clippings, facts and figures, and pictures.
7. You can plan a survey or an interview to support your research.
8. As per CBSE suggestive list of activities are Role Play, Presentation, Model, Field Survey, Mock Event etc.
9. Read and revise the chapters taught in the class. Answer the questions sent through the worksheet.
10. Read the newspaper daily especially the editorial

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Holidays Homework for Class XI (2020-21)

Subject: Political Science.

Political Science Project- Prepare a project according to CBSE guidelines. Topics as discussed in the classroom. Some suggested topics are:

1. Globalization.

2. India relation with Russia.

2. India relation with Pakistan.

3. India relation with Bangladesh.

4. India relation with Chaina.

5. Fundamental Rights.

6. India's role in United Nation.

7. Role of Local Governments under the Indian Constitution.

8. Indian Constitution and separation of Powers.

9. Terrorism.

10. Election process in India.

General Instructions:

1. Project can be individual.
2. It should be a handwritten project on a A4 size sheet.
3. Project should be summed up in briefly. (in case of pair and group the no. of pages can exceed to 20-25)
4. It should be well researched based on facts and figures and pictorial.
5. The project must have a Table of contents, Title/ Cover page, Acknowledgement, Bibliography, Analysis with headings and sub-headings.
6. It must include relevant news clippings, facts and figures, and pictures.
7. You can plan a survey or an interview to support your research.
8. As per CBSE suggestive list of activities are Role Play, Presentation, Model, Field Survey, Mock Event etc.

Students should prepare the Political Science Project under the following headings:-

1. Acknowledgement
2. Index
3. Cover page
4. Project synopsis
5. Data/Statistical analysis/Map work
6. Analysis/explanation and interpretation

7. Bibliography Political Science: A. Political Science Project- Prepare a project according to C.B.S.E Guide lines.

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Holidays Homework for Class XI (2020-21)

Subject: Economics.

Prepare your project: It should be neat and clean Students have to prepare project themes.

Topics:

1. Banking Sector of India.

2. Demonetization

3. Mixed Economy.

4. Agricultural Sector of India.

5. Market Economy.

6. Net Banking.

7. Cashless economy Transition.

8. G.S.T.

9. World Bank.

10. Reserve Bank of India.

<u>The objectives of the project work are to enable learners to:</u>

- ✓ Probe deeper into theoretical concepts learnt in classes XI and XII

- ✓ Analyse and evaluate real world economic scenarios using theoretical constructs and arguments
- ✓ Demonstrate the learning of economic theory
- ✓ Follow up aspects of economics in which learners have interest.
- ✓ Develop the communication skills to argue logically .The expectations of the project work are that:
    - o Learners will complete only ONE project in each academic session
    - o Project should be of 3,500-4,000 words (excluding diagrams & graphs), preferably hand-written
    - o It will be an independent, self-directed piece
    - o Arrange a presentation of the project file Scope of the project:
    - o Learners may work upon the following lines as a suggested flow chart: Choose a title/topic Collection of the research material/data Organization of material/data Present material/data Analysing the material/data for conclusion Draw the relevant conclusion Presentation of the Project Work

Expected Checklist:

- ✓ Introduction of topic/title
- ✓ Identifying the causes, consequences and/or remedies
- ✓ Various stakeholders and effect on each of them
- ✓ Advantages and disadvantages of situations or issues identified
- ✓ Short-term and long-term implications of economic strategies suggested in the course of research
- ✓ Validity, reliability, appropriateness and relevance of data used for research work and for presentation in the project file
- ✓ Presentation and writing that is succinct and coherent in project file
- ✓ Citation of the materials referred to, in the file in footnotes, resources section, bibliography etc. Mode of presentation/submission of the Project: At the end of the stipulated term, each learner will present the research work in the Project File to the External and Internal

examiner. The questions should be asked from the Research Work/ Project File of the learner. The Internal Examiner should ensure that the study submitted by the learner is his/her own original work. In case of any doubt, authenticity should be checked and verified.

Marking Scheme: Marks are suggested to be given as – S. No. Heading Marks Allotted

	Topics	**Marks**
1	Relevance of the topic	3
2	Knowledge Content/Research Work	6
3	Presentation Technique	3
4	Viva-voce	8
Total Marks		20

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Holidays Homework for Class XI (2020-21)

Subject: Biology

A. Experiments for spotting.

Draw and write the observation of the following specimen in your Biology Practical file.

1. Parts of a compound microscope.

2. Specimens/slides/models and identification with reasons - Bacteria, Oscillatoria, Spirogyra, Rhizopus, mushroom, yeast, liverwort, moss, fern, pine, one monocotyledonous plant, one dicotyledonous plant and one lichen.
3. Virtual specimens/slides/models and identifying features of - Amoeba, Hydra, liverfluke, Ascaris, leech, earthworm, prawn, silkworm, honeybee, snail, starfish, shark, rohu, frog, lizard, pigeon and rabbit.
4. Tissues and diversity in shape and size of plant cells (palisade cells, guard cells, 6 parenchyma, collenchyma, sclerenchyma, xylem and phloem) through temporary and permanent slides.
5. Tissues and diversity in shape and size of animal cells (squamous epithelium, smooth, skeletal and cardiac muscle fibers and mammalian blood smear) through temporary/permanent slides.
6. Mitosis in onion root tip cells and animals cells (grasshopper) from permanent slides.
7. Different modifications in roots, stems and leaves.
8. Different types of inflorescence (cymose and racemose).
9. Human skeleton and different types of joints with the help of virtual images/models only.

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Holidays Homework for Class XI (2020-21)

Subject: Accountancy and Business Studies

Accountancy

Do these questions in a notebook:

Ques 1. Explain the meaning of accounting.

Ques 2. What is the difference between Book Keeping and Accounting?

Ques 3. Discuss briefly the types of Accounting information.

Ques 4. Write a short note on the people who are interested in books of accounts.

Ques 5. What do you mean by Financial Accounting? Explain the four main limitations of Financial Accounting.

Ques 6. Write a short note on Double Entry system of Accounting.

Ques 7. What are the advantages of Accounting?

Ques 8. Explain the primary objectives of Accounting.

Ques 9. What are the different branches of Accounting?

Ques 10. What are the features of Acoounting?

Business Studies

Ques 1. Describe the concept of Business in modern context.

Ques 2. Define Business. Distinguish it from profession and employment.

Ques 3. Explain the social objectives of Business.

Ques 4. Explain the Role of Profit in the Business.

Ques 5. Draw a chart showing the classification of Business Activities.

Ques 6. Explain the meaning and characteristics of Business.

Ques 7. Describe the different types of risks involved in business transactions.

Ques 8. What are the types of utilities created by a business?

Ques 9. Briefly discuss the economic objectives of a business.

Ques 10. Why is Business considered as an Economic Activity?

PRATAP INTERNATIONAL SCHOOL, ROHINI, DELHI

CLASS- XIHOLIDAYS HOMEWORK(2020-21)

SUBJECT-ENGLISH

Q-1 Read the newspaper everyday and collect one good article/feature each related to the elderly, adventure problem faced due to construction activities in Delhi-NCR, environmental hazards and paste them in your registers.

Q-2 Collect information related to king Tut and the Egyptian civilization. Present it through power point (about 10-12 slides)

Q-3 Write an article on "Tourism and its future" in India in about 200 words.

Q-4 Watch Ted Talks related to the Elderly, people with disabilities and environment and express your opinion on the same in about 100 words each.

Q-5 Read any two of novels suggested below:

a) The adventures of Huckleberry Finn by Mark Twain.

b) 1984 by George Orwell

c) To Sir with love – E.R Braithwaite

d) Great Expectations- Charles Dickens and summarise any two of them in about 250-300 words each.

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Holidays Homework for Class XI (2020-21)

Subject: Hindi.

i. Project file on Meerabai, Krishna Sobti.

ii. Complete the class questions answers which you have read (All chapters)

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Holidays Homework for Class XI (2020-21)

Subject: I.P.

i. Chapter 1 of I.P with exercises.

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Holidays Homework for Class XI (2020-21)

Subject: Physical Education.

***Practical File shall include:*

Practical-1: Labelled diagram of 400 M Track & Field with computations

Practical-2: Computation of BMI from family or neighborhoods & graphical representation of the data.

Practical-3: List of current National Awardees (Dronacharya Award, Arjuna Award & Rajiv Gandhi Khel Ratna Award)

Practical-4: Pictorial presentation of any five Asanas for improving concentration,

Practical-5: Any one game of your choice out of the list above. Labelled diagram of field & equipment (Rules, Terminologies & Skills)

* Athletics, Archery, Badminton, Boxing, Chess, Judo, Shooting, Skating, Swimming, Taekwondo, Tennis, Aerobics, Gymnastics, Rope-Skipping, Yoga, Bocce & Unified Basketball [CWSN (Children with Special Needs - Divyang)]

i). Discuss in detail the History of the game.

a. International History.

b. National History

ii). Explain the Fundamental Skills of the game.

iii). Describe the Rules and Regulations of the game.

iv). Write down the Sports Personalities of the game

a. International Player

b. National Player

Assignment (notebook)

Q.1 what do you mean by sports journalism?

Q.3 what is the objective of physical education?

Q.4 Discuss the teaching career in physical education.

Q.5. Briefly explain the development of values through Olympic movement?

Q.6. what is Olympic Oath?

Q.7. Give the important function of International Olympic Association.

Q.8 Describe the formation and objectives of Indian Olympic association

Q 9 Make 20 M C Q from chapter no. 1, 2

Q 10 Make a balanced diet plan for teenagers for 4 weeks.

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Holidays Homework for Class XI (2020-21)

Subject: Chemistry.

A. Make a investigatory project on any one of the following topic

1) On green chemistry- Bio-diesel and bio-petrol
2) On sterilization of water using bleaching powder
3) On analysis of fertilizers
4) On measuring the amount of Acetic acid in vinegar
5) On determination of contents of cold drinks
6) To study the quantity of casein in milk
7) On presence of insecticides and pesticides in fruits and vegetables
8) On preparation of soyabean milk
9) On study of rate of fermentation of juices
10) Determination of caffeine in tea samples
11) Determination of content of toothpaste
12) Dyeing of wool, silk and cotton in malachite green
13) Effect of Potassium Bisulphite as a food preservatives

Things should be mentioned: a

a) Aim
b) Apparatus required
c) Chemicals used
d) Principle

e) Procedure
f) Observation table
g) Result
h) Precautions
i) Pictures while doing experiment in the laboratory

B. Learn the following chapters
1) Some basic concepts of chemistry
2) Structure of atom

Read all chapters thoroughly and do practice of NCERT and extra question from these chapters in chemistry notebook.

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Holidays Homework for Class XI (2020-21)

Subject: Math's.

Name of the Chapter- ***Trigonometry Class-11***

PLEASE SEE THE FOLLOWING PAGE FOR THE HOMEWEORK

Name of the Chapter- ***Trigonometry***
Class-11

Assignment

1. In a cyclic quadrilateral ABCD , find the value of $\cos A+\cos B+\cos C+\cos D$
2. If $9\theta=\pi$, find the value of $\cos\theta\cos 2\theta\cos 4\theta$
3. Prove that $\tan\frac{\pi}{20}\tan\frac{3\pi}{20}\tan\frac{5\pi}{20}\tan\frac{7\pi}{20}\tan\frac{9\pi}{20}=1$
4. $\sin^2\frac{\pi}{18}+\sin^2\frac{\pi}{9}+\sin^2\frac{7\pi}{18}+\sin^2\frac{4\pi}{9}=2$
5. If $\tan A+\frac{1}{\tan A}=2$, find the value of $\tan^{100}A+\frac{1}{\tan^{100}A}$
6. If A+B=$\frac{\pi}{4}$, Prove that (1+tanA)(1+tanB)=2
7. Find the value of $\tan 75^0+\cot 75^0$
8. If $3\sin\alpha=5\sin\beta, then$ find the value of $\frac{\tan\frac{\alpha+\beta}{2}}{\tan\frac{\alpha-\beta}{2}}$
9. Prove that $\tan9^0-\tan27^0-\tan63^0+\tan81^0=4$
10. If m tan $(\theta-30^0)$=n tan$(\theta+120^0)$ Prove that $Cos2\theta=\frac{m+n}{2(m-n)}$
11. Prove that $\frac{\sin 5x-2\sin 3x+\sin x}{\cos 5x-\cos x}=\cos ec2x-\cot 2x$
12. Find the value i) $\sin18^0$ ii) $\sin 22\frac{1}{2}^0$ iii) $\cos 22\frac{1}{2}^0$
13. If $\cos(\alpha+\beta)=0$ .prove that $\sin(\alpha+2\beta)=\sin\alpha$
14. Prove that tanA+tan(60^0+A)-tan(60^0-A)=3tan3A
15. Prove that $\sin^2 72^0-\sin^2 60^0=\frac{\sqrt{5}-1}{8}$
16. If $\cos\theta+\sec\theta=2$, find the value of $\cos^2\theta+\sec^2\theta$
17. Find the value of $\cos20^0+\cos100^0+\cos140^0$
18. Prove that $\frac{\cos x}{(1-\sin x)}=\tan\left(\frac{\pi}{4}+\frac{x}{2}\right)$
19. If $3\tan\alpha=4\tan\beta$, the prove $\tan(\alpha-\beta)=\frac{\sin 2\beta}{7-\cos 2\beta}$
20. Find the value $\sqrt{3}\cos ec20^0-\sec 20^0$
21. Prove that $\sin\theta\sin(60-\theta)\sin(60+\theta)=\frac{\sin 3\theta}{4}$
22. Prove that $\cos20^0\cos40^0\cos60^0\cos80^0=\frac{1}{16}$

23. Prove that $\frac{\sin 5x - 2\sin 3x + \sin x}{\cos 5x - \cos x} = \cos ec 2x - \cot 2x$

24. Prove that $\tan A + 2\tan 2A + 4\tan 4A + 8\cot 8A = \cot A$

25. Find the value of $\tan\frac{\pi}{8}$

26 If α and β are the acute angle and $\cos 2\alpha = \frac{3\cos 2\beta - 1}{3 - \cos 2\beta}$, prove that $\tan\alpha : \tan\beta = \sqrt{2} : 1$

27 Prove that $\cot A.\cot 2A + \cot 2A.\cot 3A + 2 = \cot A(\cot A - \cot 3A)$

28 Prove that $\cos^2(A - 120^0) + \cos^2 A + \cos^2(A + 120^0) = \frac{3}{2}$.

29 Prove that $\sin^3(A + 120^0) + \sin^3 A + \sin^3(A + 240^0) = \frac{-3}{4}\sin 3A$

30 Find the general solution of

i) $\cos 2\theta - \cos 8\theta + \cos 6\theta = 1$

ii) $\tan\theta + \tan 2\theta + \tan 3\theta = \tan\theta\tan 2\theta\tan 3\theta$

iii) $\tan 2\theta = -\cot(\theta + \frac{\pi}{3})$

iv) $\tan(\frac{\pi}{4} + \theta) + \tan(\frac{\pi}{4} - \theta) = 4$

31 If $\cos(\alpha + \beta) = \frac{4}{5}$ and $\sin(\alpha - \beta) = \frac{5}{13}$ and α and β are the acute angles , find the value of $\tan 2\alpha$

32 If $\tan^2 A = (1 - e^2)$, prove that $\sec A + \tan^3 A\cos ecA = (2 - e^2)^{\frac{3}{2}}$

33 If $\sec A - \tan A = 4$, find the value $\sin A$ and cosA

34 Prove that $\frac{3 + \cot 76^0.\cot 16^0}{\cot 76^0 + \cot 16^0} = \tan 46^0$

35 Prove that $\sin^4\frac{\pi}{8} + \sin^4\frac{3\pi}{8} + \sin^4\frac{5\pi}{8} + \sin^4\frac{7\pi}{8} = \frac{3}{2}$

36 Prove that $\sin\frac{\pi}{14}\sin\frac{3\pi}{14}\sin\frac{5\pi}{14} = \frac{1}{8}$

37 If $\tan y = \frac{Q\sin x}{P + Q\cos x}$, prove that $\tan(x - y) = \frac{P\sin x}{Q + P\cos x}$

38 Find the number of solution of the equation sin5xcos3x=sin6xcos2x on [0 , π]

39 If $x\cos\theta = y\cos(\theta + \frac{2\pi}{3}) = z\cos(\theta + \frac{4\pi}{3})$,then find the value of xy+yz+zx.

40 Find the value of p(range of p) if the equation $p\sin x + \cos 2x = 2p - 7$ possesses

41 Solve the followings:

i) $7\cos^2 x + 3\sin^2 x = 4$

ii) $2\sin^2 x + \sin^2 2x = 2$

iii) $4\sin x \sin 2x \sin 4x = \sin 3x$

iv) $\cot x + \operatorname{cosec} x = \sqrt{3}$

v) $\tan(x + \frac{\pi}{12}) = 3\tan(x - \frac{\pi}{12})$

vi) If $3\tan(x - 15^0) = \tan(x + 15^0)$ $o^o < x < 90^0$, *find* x

42 **Solution of triangle:**

In triangle ABC, Prove the followings(1 to 6)

1 $\frac{Sin(B-C)}{Sin(B+C)} = \frac{b^2 - c^2}{a^2}$

2 $\frac{\cos A}{a} + \frac{\cos B}{b} + \frac{\cos C}{c} = \frac{a^2 + b^2 + c^2}{2abc}$

3 *If* $\frac{\cos A}{\cos B} = \frac{a}{b}$,prove that the triangle is isosceles.

4 $\sin\frac{B-C}{2} = \frac{b-c}{a}\cos\frac{A}{2}$

5 $a(b\cos C - c\cos B) = b^2 - c^2$

6 If $\frac{1}{a+c} + \frac{1}{b+c} = \frac{3}{a+b+c}$ Prove that $\angle C = 60^0$

Answer 1 Zero 2 1/8 5 two 7 Four 12 i) $\frac{\sqrt{5}-1}{4}$

ii) $\frac{\sqrt{\sqrt{2}-1}}{2\sqrt{2}}$ iii) $\frac{\sqrt{\sqrt{2}+1}}{2\sqrt{2}}$ 16. 2 20. 4 25. $\sqrt{2}-1$ 30. i) $(2n+1)\frac{\pi}{8}, \frac{n\pi}{3}$

ii) $\theta = \frac{n\pi}{3}$ iii) $\theta = n\pi + \frac{5\pi}{6}$ iv) $\theta = n\pi \pm \frac{\pi}{6}$ 31. $\frac{56}{33}$

33. $\sin A = \frac{15}{17}$ and $\cos A = \frac{8}{17}$ 38. 5 solutions i.e $0, \frac{\pi}{6}, \frac{\pi}{2}, \frac{5\pi}{6}, \pi$ 39. Zero

40. $2 \le p \le 6$ 41.i) $x = n\pi \pm \frac{\pi}{3}$ ii) $x = n\pi \pm \frac{\pi}{2}$ *and* $\mathrm{m}\pi \pm \frac{\pi}{4}$ iii) $x = n\pi$ or $x = \frac{m\pi}{3} \pm \frac{\pi}{9}$ iv) $x = 2n\pi + \frac{\pi}{3}$ v) $x = \frac{n\pi}{2} + (-1)^n \frac{\pi}{4}$ vi) $x = \frac{\pi}{4}$