

HOLIDAY HOMEWORK 2024-2025

CLASS-X

SOCIAL SCIENCE

POLITICAL SCIENCE

Q.1 How many National Political Parties are there in India ? Write about each National Political Parties principle, origin and their main leaders. Write a news report on the result of recent 2024 elections in the most creative manner on A4 size sheet.

2. Make a comic caricature depicting the current political upheaval in the country.

HISTORY

Write an essay with related topics in about 500 words (any one)

1) First World War, Khilafat Andolan and Non Co-operation movement

2) Democracy and India

ECONOMICS

Your file should include the following:

1.What is demonetization?

2.Its impact on the Indian economy.(Pros& cons)

3.Has any government ever previously demonetized Currency notes?

4-Research based question- Trace the origin and logo of a well-known company.

5. The project on the theme 'jago grahak jago' should contain instances in which the consumer feels cheated and how with the help of Consumer Redressal programme the exploited consumer becomes an empowered consumer. Answer in Yes or No.

SELF SURVEY QUESTIONNAIRE QUESTION

1.Do you check the products manufacturing and expiry date before purchasing a product?

2.Do you check standardization marks ISO and FSSAI?

3.Do you examine ingredients used?

4.Do you complain in the store in case of dissatisfaction?

5. Are your complaints attended on time?

6. Have you ever filed a complaint in a consumer court in case of dissatisfaction?

7.Was your complaint attended to your satisfaction?

8.Are you aware of consumer courts, consumer redressal grievances?

9.Is the advertisement of the product persuasive'?

10.Do promotional offers, and marketing campaigns such as free tooth brush, discount and buy 1get 1 attract you?

GEOGRAPHY

MAPWORK:Do the following map work in political map of India and paste it in fair geography copy.

Chapter 5: Minerals and Energy Resources

A. Iron Ore mines:- 1.Mayurbhanj 2. Durg 3. Bailadila 4. Bellary 5. Kudremukh

B. Coal Mines: 1. Raniganj 2.Bokaro 3. Talcher 4. Neyveli

C. Oil Fields:-1. Digboi 2. Naharkatia 3. Mumbai High 4. Bassein 5. Kalol 6. Ankleshwar

2. Power Plants

A. Thermal:- A. Namrup B. Singrauli C. Ramagundam

B.. Nuclear:- A. Narora Kakrapara C. Tarapur D. Kalpakkam

Chapter 6: Manufacturing Industries

A. Cotton Textile Industries:

1.Mumbai, 2.Indore, 3. Surat, 4. Kanpur, 5.Coimbatore

B. Iron and Steel Plants: 1. Durgapur, 2. Bokaro, 3. Jamshedpur, 4. Bhilai,

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C. Software Technology

SCIENCE

CHEMISTRY

Q1.DO ALL ACTIVITY (CHAPTER -1) IN YOUR PRACTICAL COPY.

Q2. Explain the significance of photosynthesis.

Write the balanced chemical equation involved in the process.

Q3. Write balanced chemical equations for the following chemical reactions:

(a) Hydrogen + Chlorine \rightarrow Hydrogen chloride

(b) Lead + Copper chloride \rightarrow Lead chloride + Copper

(c) Zinc oxide + Carbon \rightarrow Zinc + Carbon monoxide (Board Term I, 2014)

Q4. When hydrogen sulphide gas is passed through a blue solution of copper sulphate, a black precipitate of copper sulphide is obtained and the sulphuric acid so formed remains in the solution. The reaction is an example of a (GIVE ANSWER WITH EXAMPLE)

(a) combination reaction

(b) displacement reaction

(c) decomposition reaction

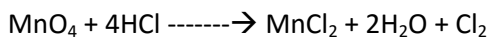
(d) double displacement reaction.

Q5. Write balanced chemical equation for the reaction that occurs when :

(i) Blue coloured copper sulphate crystals are heated and

(ii) Sodium hydrogen carbonate is heated during cooking.

Q6. State whether the given chemical reaction is a redox reaction or not .justify your answer.



Q7. Is burning of a candle wax a physical change or a chemical change ?

Q8. Why should magnesium ribbon be cleaned before burning in air ?

Q9. A solution of substance 'x' is used for white washing. Name the substance 'x' and write its formula.

Q10. Why is hydrogen peroxide kept in coloured bottles ?

Q11. Mention the colour of $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ crystal. How does this colour change upon heating ?

Q12. Why photosynthesis is considered an endothermic reaction ?

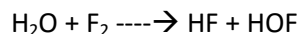
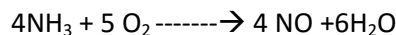
Q13. Decomposition reaction require energy either in the form of heat or light or electricity for breaking down the reactants. Write one equation each for decomposition reactions where energy is supplied in the form of heat ,light and electricity.

Q14. With the help of an appropriate example , justify that some of the chemical reaction are determined by

(i) Change in temperature

(ii) Evolution of gas

Q15. Identify the reducing agent in the following reaction:



PHYSICS

SOLVE THESE QUESTIONS:

- Q1. Find the focal length of a convex mirror of radius of curvature 1 m.
- Q2. An object 4 cm in size is placed at a distance of 25 cm from a concave mirror of focal length 15 cm. Find the position, nature and height of the image.
- Q3. A converging mirror forms a real image of height 4 cm, of an object of height 1 cm placed 20 cm away from the mirror. Calculate the image distance. What is the focal length of the mirror?
- Q4. An object of height 1.2 m is placed before a concave mirror of focal length 20 cm so that a real image is formed at a distance 60 cm from it. Find the position of the object? What will be height of image formed?
- Q5. A 4.5 cm needle is placed 12 cm away from a convex mirror of focal length 15 cm. give the location of the image and magnification. Describe what happens as the needle is moved farther from the mirror.
- Q6. An arrow 2.5 cm high is placed at a distance of 25 cm from a diverging mirror of focal length 20 cm. find the nature, position and size of the image formed.
- Q7. When a concave mirror is placed facing the sun, the sun's rays converge to a point 10 cm from the mirror. Now if you place a 2 cm long candle flame 20 cm away on the principal axis of the mirror, where would you place a screen to obtain the image of the candle? What would be the size of the image? draw a ray diagram to justify your answer.
- Q8. Draw different ray diagrams for image formation by concave mirror for different position of object.
- Q9. Verify the laws of reflection by an activity write your observation in your notebook.
- Q10. What do you mean by magnification? What do you mean by positive and negative value of magnification? Write your conclusion for (a) $m = -3$ (b) $m = +2$ (c) $m = -0.2$ (d) $m = +0.5$

Biology

Do the following questions in your class work copy along with questions.

- Q1. What is digestion?
- Q2. Define nutrition.
- Q3. Write the human dental formula.
- Q4. Give the location of major glands that participate in the process of digestion.
- Q5. What is respiration?
- Q6. Mention the advantages of transpiration.
- Q7. Lungs in human are part of which system?
- Q8. What are the requirements of autotrophic mode of nutrition in plants?
- Q9. What is the site of breakdown of pyruvate to give-
 - i. Carbon dioxide, water and energy
 - ii. Lactic acid and energy
 - iii. Alcohol, carbon dioxide and energy
- Q10. How are fats digested in human body? Where this process takes place in?
- Q11. What are the major differences between breathing and respiration?

- Q12. What is the role of saliva in digestion of food?
- Q13. What is peristaltic movement?
- Q14. What are necessary conditions for the photosynthesis? Mention the by-products of nutrition.
- Q15. What are the differences between aerobic and anaerobic respiration?
- Q16. What is the site of following in humans-
- i. Final digestion
 - ii. Final absorption
- Q17. Name the organisms which use the anaerobic mode of respiration.
- Q18. How is human respiratory system designed to maximise the exchange of gases?
- Q19. Where is bile produced?
- Q20. Draw a labelled diagram of open and closed stomata.
- Q21. What does the stomach of human mainly digest?
- Q22. What is the energy currency produced in the cell?
- Q23. What is approximate energy released by the breakdown of one molecule of ATP?
- Q24. What is the first step of respiration that is common in all the living organism?
- Q25. How many molecules of ATP are gained during anaerobic respiration of one molecule of glucose?
- Q26. What is the end product of glycolysis?
- Q27. The process of respiration is which type of reaction and why?
- Q28. To prevent the entry of food into trachea, the opening is guarded by.....
- Q29. What are the major functions of stomata?
- Q30. Draw a labelled diagram of alimentary canal of humans?
- Q31. Illustrate and describe how do unicellular organism like amoeba take their food.
- Q32. Why are plants green?
- Q33. What is emulsification of fats?
- Q34. Bile does not have any type of enzyme but contributes in the process of digestion. Discuss.
- Q35. Define the events of photosynthesis.
- Q36. Why do herbivores have longer whereas carnivores have a shorter small intestine?
- Q37. Give complete balanced equation of photosynthesis.
- Q38. Give differences between ectoparasite and endoparasite.
- Q39. What are the characteristic features of saprophytic mode of nutrition?
- Q40. How is symbiosis different from parasitic mode of nutrition?

Hindi

- 1- 'बाल गोविंद भगत' पाठ में जो ग्रामीण संस्कृति की झलक मिलती है वह आपके आसपास के वातावरण से कैसे भिन्न है? इसकी चित्रात्मक प्रस्तुति करिए।
- 2- राम- लक्ष्मण- परशुराम संवाद पाठ के शुरुआत की तीन चौपाइयों तथा तीन दोहों की संदर्भ सहित व्याख्या कीजिए।
- 3- नेताजी सुभाष चंद्र बोस के व्यक्तित्व कृतित्व पर एक प्रोजेक्ट तैयार कीजिए।

Computer

1. With the help of chart paper, glue stick and newspaper clippings, make a collage of different types of facial expressions - happy, sad, surprised (interested), angry, disgusted or afraid.
2. For a week, observe any one person of your choice on his/her 'feedback giving style'. Prepare a chart enlisting do's and don'ts for giving feedback effectively.
3. Role play with your friend on how you overcame a communication barrier during the annual sports day/school science fest.
4. For a week, observe any one person of your choice on his/her 'communication style', audit the effectiveness of his communication (by observing whether people agree or disagree to what he requests for). Prepare a 'communication advice' (based on the 7Cs of effective communication) for him/her.
5. Write a paragraph on any topic of your choice using all three types of sentences – (a) simple sentence, (b) compound sentence, (c) complex sentence.

Attempt any two of these in your class work copy.

English

SECTION A: Comprehension passages:

1. Read the passage given below :

(1). If you're like most kids, you may love snow. Not only can it get you out of school, but it's also fun to play with. Who doesn't love to sled and build snowmen? Snow can also be dangerous, too. You may have heard your parents talk about how difficult it can be to drive in snow. Car accidents aren't the only dangers created by snow, though. If you're ever skiing in the mountains, you'll want to be aware of avalanches. An avalanche is a sudden flow of snow down a slope, such as a mountain. The amount of snow in an avalanche will vary based on many things, but it can be such a huge amount that it can bury the bottom of a slope in dozens of feet of snow.

(2). Avalanches can be caused by many things. Some of them are natural. For example, new snow or rain can cause built up snow to loosen and fall down the side of a mountain. Earthquakes and the movement of animals have also been known to cause avalanches. Artificial triggers can also cause avalanches. For example, snowmobiles, skiers, gunshots and explosives have all been known to cause avalanches. Avalanches usually occur during the winter and spring, when snowfall is greatest. As they are dangerous to any living beings in their path, avalanches have destroyed forests, roads, railroads and even entire towns.

(3). Warning signs exist that allow experts to predict – and often prevent – avalanches from occurring. When over a foot of fresh snow falls, experts know to be on the lookout for avalanches. Explosives can be used in places with massive snow build-ups to trigger smaller avalanches that don't pose a danger to persons or property. When deadly avalanches do occur, the moving snow can quickly reach over 80 miles per hour. Skiers caught in such avalanches can be buried under dozens of feet of snow. While it's possible to dig out of such avalanches, not all are able to escape.

(4). If you get tossed about by an avalanche and find yourself buried under many feet of snow, you might not have a true sense of which way is up and which way is down. Some avalanche victims have tried to dig their way out, only to find that they were upside down and digging themselves farther under the snow rather than to the top ! Experts suggest that people caught in an avalanche try to “swim” to the top of the moving snow to stay close to the surface. Once the avalanche stops, do your best to dig around you to create a space for air, so you can breathe easier. Then, do your best to figure out which way is up and dig in that direction to reach the surface and signal rescuers.

Based on your understanding of the passage answer the questions given below :
10 x 1 = 10

- (i) Complete the sentence by choosing an appropriate option :
Avalanche can be caused by _____.
(a) new snow or rain (b) heavy winds (c) high altitude (d) global warming
- (ii) Comment on warning signs exist which allow experts to predict avalanches in two sentences.
- (iii) Mention two reasons which destroyed the natural scenery.
- (iv) Select the option that conveys the opposite of 'Predict' :
(a) forecast (b) cast (c) doubt (d) anticipate
- (v) The writer will agree with the given statement based on last paragraph –
(a) People caught in the Avalanche can try to swim to the top.
(b) Put on an oxygen mask.
(c) Digging is not possible.
(d) Should not come close to the surface.
- (vi) Select the option that corresponds to the following relation below :
You may not have an idea of which way is up and which way is down.
(a) The crowd will gather at Gate No. 1 and disperse from Gate No. 2.
(b) Due to the torrential rain, there was a heavy flooding.
(c) The guest felt uneasy and uncomfortable watching the child's performance.
(d) The more the effort, the bigger the gain.
- (vii) The major causes which do not trigger avalanche :
(a) Earthquakes (b) Snow fall
(c) Heavy rain (d) Plastic waste
- (viii) Explosives can be used in places _____. (complete the sentence)
- (ix) The word 'deadly' in the (3) paragraph most nearly means :
(a) likely to cause death (b) harmful
(c) very boring (d) scary
- (x) Select the most suitable title for the above passage :
(a) Avalanches (b) Adventure with Snow (c) Ice Games (d) Calamity

2. Read the following passage carefully :

1. Read the following passage carefully :

(1). Organic food is very popular these days. It can also be very expensive. Some organic food costs twice as much as non-organic food. Parents of young children and even some pet owners, will pay high prices for organic food if they think it is healthier. But many others think organic food is just a waste of money.

(2). There is one main difference between organic and non-organic food. Organic farms do not use agricultural chemicals such as pesticides that stop insects from damaging crops. In many countries, foods that claim to be organic must have special labels that guarantee they're grown organically.

(3). Some people think organic also means 'locally grown' and originally it was indeed true. But over a period of time organic farming has become a big business, with many organic foods now being grown by large agricultural companies that sell their products far from where they're grown. Processed food made with organic ingredients has also become more popular. At first, only small companies produced these products. But as demand overtook supply, big food companies that had been selling non-organic products for many years also began selling organic products.

(4). Is organic food safer and more nutritious? This is an important part of the debate. Many farmers and consumers believe it is safer and more nutritious. They think agricultural chemicals can cause serious illnesses such as cancer, but there is not much evidence proving this is true. However, recent studies have shown that eating organically-grown produce reduces your chances of developing heart diseases. Many doctors think it is more important to stop dangerous bacteria from contaminating foods. These bacteria can contaminate both organic and non-organic fruits and vegetables, and doctors recommend washing produce carefully before eating it. Meat, fish and chicken can also become contaminated so washing your hands before handling these foods is also very important.

Based on your understanding of the passage, answer the questions given below :

10 x1=10

(i) People are willing to pay high prices for organic food because

- (a) it is not easily available.
- (b) it helps in weight loss.
- (c) it is produced by small companies.
- (d) it does not contain agricultural chemicals.

(ii) Select the option that displays what the writer projects with reference to the following :
Is organic food safer and more nutritious ? This is an important part of the debate.

(a) denial (b) confirmation (c) caution (d) acceptance

(iii) Complete the following with a phrase from paragraph 3.

Opinion	Reason
Big food companies have started selling organic food products.	

(iv) The writer contrasts organic food to non-organic food.

State one point of comparison between the two.

(v) Based on your reading of the text, list one benefit of eating organic food.

(vi) What connect does the writer draw between contamination of food and washing hands ?

(vii) The writer says that people believe that it is safer and more nutritious to eat organic food.

Select the reason for his sceptical view.

- (a) the price decides the popularity
- (b) there is no confirmed evidence
- (c) it is tastier
- (d) it is marketed by big food companies

(viii) Supply one point to justify the following :

Some people think organic also means 'locally grown'.

(ix) Supply one method of how we can control the contamination of organic and non-organic food.

(x) List one factor that certifies food to be organic.

3. Read the passage given below :

(1) Increasing traffic congestion every year is causing increasing air pollution, wasting time and productivity and diverse respiratory diseases. Moreover, the cost of solving or reducing traffic congestion is enormous. However, neglecting the traffic jam problem would increase the social problems among citizens.

(2) The number of vehicles has increased considerably in the city in the past five years. Due to this increase, the city roads witness frequent traffic congestions, but above all, the vehicles emitting pollutants are affecting the environment adversely.

(3) The Capital's vehicular population saw an addition of more than five lakh vehicles last year, registering an increase of over 4%, according to the Delhi Economic Survey 2020-21.

(4) In spite of the largest road network, through metro and bus services in major cities the transport system is not being able to keep pace with the growing demand. Consequently, more and more people use their private vehicles, leading to increased congestion on the roads. In spite of these challenges people in India prefer road travel over air and other means of travel. Citizens of Delhi/NCR have, time and again, pondered over the possibilities of how to reduce the traffic congestion in the city, especially during the peak hours. People should use public transport, the government must increase the facilities of public transport, people should avoid the unnecessary collection of vehicles and should use carpool and vehicle sharing.

(5) What is required is proper implementation of corrective measures by citizens to get an organized traffic management system.

(i) Infer one reason for the following, based on information in paragraph 1. Reducing traffic congestion is not easy.

(ii) Complete the following analogy correctly with a word / phrase from the paragraph 5.

organized : chaotic :: lowest : _____

Clue : Just as organized is an antonym of chaotic, lowest is an antonym of _____.

(iii) The vehicles emit pollutants which affect _____ badly.

(iv) Complete the following sentence. Use of public transport will reduce _____.

- (v) What is required to get an organized traffic management system ?
- (vi) Give the reasons for increase in vehicular congestion.
- (vii) Fill in the blank by selecting the correct option.
There are _____ consequences of increasing vehicular congestion.
(a) beneficial (b) adverse (c) implicit (d) explicit
- (viii) Substitute the underlined word with ONE WORD similar in meaning in the following sentence.
Citizens of Delhi/NCR have time and time again pondered over the possibilities of how to reduce traffic congestion.

Section – B: Grammar

Question 4. Solve these-

- (i) Reena always _____ the truth.
(a) speak (b) speaks (c) will speak (d) speaking
- (ii) Select the correct option to fill in the blank for the given line :
Bread and butter _____ my favourite breakfast.
(a) is (b) am (c) are (d) has been
- (iii) Read the conversation between two friends Ravi and Reena. Complete the sentence by reporting Reena’s reply correctly.
Ravi : “Reena, lend me hundred rupees’.
Reena : “I don’t have it right now, but I will arrange it for you”.

Ravi asked Reena to lend him hundred rupees, to which Reena replied that _____.

- (iv) Select the option that identifies the error and supplies the correction for the following line:

I can run fast when I was young.

S.No	Error	Correction
A	was	Is
B	run	Ran
C	can	Could
D	when	Whence

- (v) Complete the given narrative, by filling in the blank with the correct option :
Heena _____ from fever since last Sunday.
(a) suffered (b) will suffer (c) suffer (d) has been suffering

- (vi) Fill in the blank by using the correct word in the bracket.
Anyas _____ (eat) all the chocolates kept in the tray.
(a) ate (b) eating (c) have eaten (d) eaten

- (vii) Report the dialogue between a mother and a daughter by completing the sentence :
Mother : Why are you looking so worried ?
Daughter : My exams are approaching.

In response to the question of the mother, the daughter replied that _____.

- (viii) Identify the error in the given sentence : The ship Titanic and her fate continues to fascinate the imagination of the people. Use the given format for your response :

Error	Correction

(ix) Ritu and Randeep are talking. Report Ritu's question.

Ritu – Where are you going ?

Ritu asked _____.

(x) Fill in the blank by choosing the correct option, to complete the slogan :

_____ smile and pass it to others.

(a) Happy (b) Short (c) Always (d) Humble

(xi) Select the correct option to complete the narration of the dialogue between Anil and Sanjeev :

Anil : Where are you going ?

Sanjeev : To the airport.

Anil : May I drop you there as I'm going in that direction ?

Anil asked Sanjeev where he was going and offered to drop him as _____.

(a) he could be going in that direction

(b) he would be going in the direction

(c) he is going in the direction

(d) he was going in that direction

(xii) Identify the error in the newspaper headline.

Attractive packages for different Tourist destination – Mizoram, Kashmir, Kerala, Goa.

Use the given format for your response :

Error	Correction

(xiii) Fill in the blank by choosing the correct option to complete an online update :

The conclave scheduled by the 'Daily Herald' _____ time.

(a) took out (b) took up (c) took after (d) took down

(xiv) Read the conversation between a policeman and a driver. Complete the sentence by reporting the reply correctly.

Policeman : Do you need any help to reach your destination ?

Driver : Yes, I am not sure which direction to take.

The policeman asked the driver whether he needed any help to reach his destination to which the driver replied _____.

(xv) Select the correct option to fill in the blank for the given line from a travel magazine.

Tourists are warned that they _____ be fined if they tease animals.

(a) should (b) may (c) will (d) might

(xvi) Select the option that identifies the error and supplies the correction for the following line :

At the end of the street stand the tallest building in the city.

Error	Correction

(xvii) Complete the given narrative by filling in the blank with the correct option : I was delighted when _____ junior school teacher.

- (a) ran into (b) ran down (c) ran away (d) ran in

(xviii) Fill in the blank by using that correct form of the word given in the bracket.

The film with its exciting soundtrack and classical music _____ (appeal) to the general audiences.

(xix) Report the dialogue between the gatekeeper and the visitor by completing the sentence :

Gatekeeper : Whom do you want to meet ?

Visitor : I want to see the art and craft exhibition.

In response to the question about whom the visitor wanted to meet, the visitor replied _____ .

(xx) Identify the error in the given sentence and supply the correction :

The teacher had run after the boy to catch him before he fell into the ditch.

Error	Correction

SECTION C: WRITING SKILLS

5. You are Preeti/Pramod residing at Green View Apartments, Pune. The rising prices of daily commodities have added to the problems of the common man who is finding it difficult to meet his daily needs. Write a letter to the editor of a national daily in 100-120 words voicing the problems you are facing because of this inflation and requesting the concerned authorities to look into the matter.

6. You want to order for toys for the new shop (Toys R Us) that you are planning to open in Rekabganj, Ayodhya. Write a letter to M/S Toysland Limited, Gurugram to order 10 pieces each of 5 toys. You are Alka/Ashish. (Word limit 100-120).

Mathematics

Q1) If α and β are the zeros of the quadratic polynomial $f(x)=x^2 - x - 4$, find the

value of $\frac{1}{\alpha} + \frac{1}{\beta} - \alpha\beta$.

Q2) If α and β are the zeros of the quadratic polynomial $p(x) = 4x^2 - 5x - 1$, find the value of $\alpha^2\beta + \alpha\beta^2$.

Q3)

If α and β are the zeros of the quadratic polynomial $f(x) = ax^2 + bx + c$, then evaluate :

$$a\left(\frac{\alpha^2}{\beta} + \frac{\beta^2}{\alpha}\right) + b\left(\frac{\alpha}{\beta} + \frac{\beta}{\alpha}\right)$$

Q4) In the following, trigonometric ratios are given. Find the values of the other trigonometric ratios.

$$\cos \theta = \frac{7}{25}$$

Q5) if $\sec A = \frac{5}{4}$ verify that $\frac{3 \sin A - 4 \sin^3 A}{4 \cos^3 A - 3 \cos A} = \frac{3 \tan A - \tan^3 A}{1 - 3 \tan^2 A}$

Q6) Find the value of x in the following :

$$2 \sin 3x = \sqrt{3}$$

Q7) If $\sin \theta + \cos \theta = x$, prove that $\sin^6 \theta + \cos^6 \theta = \frac{4 - 3(x^2 - 1)^2}{4}$

Q8) Prove that $\sqrt{\frac{1 + \cos \theta}{1 - \cos \theta}} + \sqrt{\frac{1 - \cos \theta}{1 + \cos \theta}} = 2 \operatorname{cosec} \theta$

Q9) If $3 \sin \theta + 5 \cos \theta = 5$, prove that $5 \sin \theta - 3 \cos \theta = \pm 3$.

Q10) If $\cos \theta + \cos^2 \theta = 1$, prove that $\sin^{12} \theta + 3 \sin^{10} \theta + 3 \sin^8 \theta + \sin^6 \theta + 2 \sin^4 \theta + 2 \sin^2 \theta - 2 = 1$

Q11) If the angle of elevation of a cloud from a point h meters above a lake is α and the angle of depression of its reflection in the lake be β , prove that the distance of the cloud from the point of observation is $\frac{2h \sec \alpha}{\tan \beta - \tan \alpha}$

Q12) A ladder rests against a wall at an angle α to the horizontal. Its foot is pulled away from the wall through a distance a so that it slides a distance b down the wall making an angle β with the horizontal. Show that $\frac{a}{b} = \frac{\cos \alpha - \cos \beta}{\sin \beta - \sin \alpha}$

Q13) A boy is standing on the ground and flying a kite with 100 m of string at an elevation of 30° . Another boy is standing on the roof of a 10 m high building and is flying his kite at an elevation of 45° . Both the boys are on opposite sides of both the kites. Find the length of the string that the second boy must have so that the two kites meet.