

HOLIDAY HOMEWORK CLASS X

Instructions : Do all work in class notebook. Write questions also. For case based questions you can take print out of questions then paste questions in notebook.

1. Solve graphically each of the following systems of linear equations. Also find the coordinates of the points where the lines meet axis of y.

(i) $2x - 5y + 4 = 0,$

$2x + y - 8 = 0$

[CBSE 2005]

(ii) $3x + 2y = 12$

$5x - 2y = 4$

[CBSE 2005]

(iii) $2x + y - 11 = 0,$

$x - y - 1 = 0$

[CBSE 2000C]

(iv) $x + 2y - 7 = 0,$

$2x - y - 4 = 0$

[CBSE 2000C]

- 2.

~~EXAMPLE 11~~ Find the values of p and q for which the following system of equations has infinite number of solutions:

$$2x + 3y = 7$$

$$(p + q)x + (2p - q)y = 21$$

- 3.

The sum of the squares of two consecutive odd positive integers is 394. Find them.

[CBSE 2009, 2011]

- 4.

If the equation $(1 + m^2)x^2 + 2mcx + (c^2 - a^2) = 0$ has equal roots, prove that $c^2 = a^2(1 + m^2)$.

[CBSE 2017]

- 5.

The sum of the numerator and denominator of a fraction is 3 less than twice the denominator. If the numerator and denominator are decreased by 1, the numerator becomes half the denominator. Determine the fraction.

[CBSE 2004, 2009]

- 6.

~~EXAMPLE 12~~ For what value of k , will the system of equations

$$x + 2y = 5$$

$$3x + ky - 15 = 0.$$

has (i) a unique solution? (ii) no solution?

7. Find the values of k for which the following equations have real roots

(i) $2x^2 + kx + 3 = 0$ [NCERT] (ii) $kx(x - 2) + 6 = 0$ [NCERT]

(iii) $x^2 - 4kx + k = 0$ [CBSE 2012] (iv) $kx(x - 2\sqrt{5}) + 10 = 0$ [CBSE]

(v) $kx(x - 3) + 9 = 0$ [CBSE 2014] (vi) $4x^2 + kx + 3 = 0$ [CBSE]

8.

ASSERTION-REASON

Each of the following questions contains STATEMENT-1 (Assertion) and STATEMENT-2 (Reason) and has following four choices (a), (b), (c) and (d), only one of which is the correct answer. Mark the correct choice.

- (a) Statement-1 is true, Statement-2 is true; Statement-2 is a correct explanation for Statement-1.
 (b) Statement-1 is true, Statement-2 is true; Statement-2 is not a correct explanation for Statement-1.
 (c) Statement-1 is true, Statement-2 is false.
 (d) Statement-1 is false, Statement-2 is true.

(i) Statement-1 (Assertion): If the system of equations $3x + 6y = 10$ and $2x - ky + 5 = 0$ is inconsistent, then $k = -4$.

Statement-2 (Reason): The system of equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ is inconsistent iff $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$.

(ii) Statement-1 (Assertion): If a pair of linear equations represent coincident lines, then the equations are consistent and have a unique solution.

Statement-2 (Reason): A pair of linear equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ represents coincident lines iff $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$.

(iii)

Statement-1 (Assertion): If zeroes of the polynomial $f(x) = 5x^2 - 11x - (k - 3)$ are reciprocal of each other, then $k = -2$.

Statement-2 (Reason): The product of the zeroes of the polynomial $ax^2 + bx + c$ is $-\frac{c}{a}$.

(iv)

Statement-1 (Assertion): The system of linear equations $9x + 3y + 12 = 0$ and $18x + 6y + 24 = 0$ have infinitely many solutions.

Statement-2 (Reason): The system of linear equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ have infinitely many solutions, if $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$.

(v)

Statement-1 (Assertion): If the sum of the zeroes of the quadratic polynomial

$$f(x) = 3x^2 + kx + 5 \text{ is } -\frac{2}{3}, \text{ Then the value of } k \text{ is } 2.$$

Statement-2 (Reason): The product of zeroes of the polynomial $ax^2 + bx + c$ is $\frac{c}{a}$.

CASE STUDY BASED

9. 33. Teachers and students of class X of a school had gone to Nandan Kannan for study tour. After visiting different places of Nandan Kannan, lastly, they visited bird's sanctuary and deer park. Rohan is a clever boy and keen observer. He put the question to his friends "How many birds are there and how many deer are there (at particular time) in Nandan Kannan?" Rahul's friend, Nishith gave the correct answer as follows:
'Nishith answered that total animals have 1000 eyes and 1400 legs.'



Fig. 3.7

- (i) If x and y be the number of birds and deer respectively, what is the equation of total number of eyes?
 (a) $x + y = 1000$ (b) $x + y = 500$ (c) $x - y = 1000$ (d) $x - y = 500$
- (ii) What is the equation of total number of legs?
 (a) $2x + y = 70$ (b) $x + 2y = 500$ (c) $x + 2y = 700$ (d) $2x - y = 500$
- (iii) How many birds are there in the Zoo?
 (a) 1000 (b) 5000 (c) 300 (d) 200
- (iv) How many deer are there in the Zoo?
 (a) 700 (b) 1400 (c) 350 (d) 700
47. On May 20, 2020 super cyclonic storm Amphan hit West Bengal. It caused widespread damage in West Bengal. Due to this thousand of trees were uprooted and electric poles were bent out. Some electric poles bent into the shape of a parabola shown below. A parabola is represented by a quadratic polynomial. Based on the above information answer the following questions:

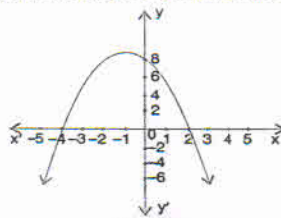


Fig. 2.19

10.

- (i) If the parabola shown in Fig. 2.19 represents the quadratic polynomial $p(x) = ax^2 + bx + c$, then
 (a) $a > 0$ (b) $a < 0$ (c) $a = 0$ (d) $2a + b = 0$
- (ii) Zeros of the quadratic polynomial represented by the parabola are
 (a) 2 and 4 (b) -4 and 2 (c) 4 and -2 (d) -2 and 2
- (iii) The quadratic polynomial $p(x)$ representing the given parabola is
 (a) $x^2 + 4x - 8$ (b) $x^2 + 2x - 8$ (c) $-x^2 + 2x - 8$ (d) $-x^2 - 2x + 8$
- (iv) The value of $p(x)$ at $x = 0$ is
 (a) -8 (b) 8 (c) 4 (d) -4

11.

EXAMPLE 12 Ravish is planning to buy a house whose layout is given below. The design and the measurement has been made such that areas of two bedrooms and kitchen together is 95 m^2 .

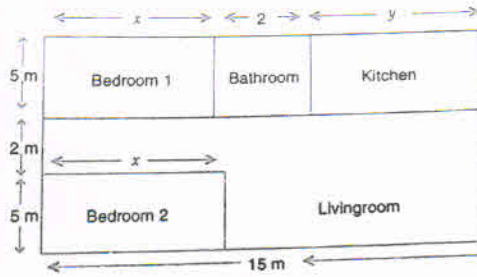


Fig. 3.1

- (i) The pair of linear equations in two variables describing this situation is
 (a) $2x + y = 19, x + y = 13$ (b) $x + 2y = 19, x + y = 13$
 (c) $2x + y = 13, x + y = 13$ (d) $2x + y = 13, x + y = 19$
- (ii) The perimeter and area of the house are respectively
 (a) 54 m, 180 m^2 (b) 180 m, 54 m^2 (c) 27 m, 90 m^2 (d) 108 m, 180 m^2

(iii) The value of xy is

- (a) 42 (b) 48 (c) 49 (d) 13

(iv) The value of $x - y$ is

- (a) 13 (b) 1 (c) -1 (d) .42

(v) The cost of laying tiles in the kitchen at the rate of ₹ 70 per m^2 is

- (a) ₹ 2200 (b) ₹ 2400 (c) ₹ 2450 (d) ₹ 2550

EXAMPLE 30 An asana is a body posture, originally and still a general term for a sitting meditation pose, and later extended in hatha yoga and modern yoga as exercise, to any type of pose or position, adding reclining standing, inverted twisting and balancing poses. In the following figure, one can observe that poses can be related to representation of a quadratic polynomial.

12.



Fig. 2.5

- (i) The shape of the poses shown is
 (a) Spiral (b) Ellipse (c) Linear (d) Parabola
- (ii) The graph of the parabola representing polynomial $p(x) = ax^2 + bx + c$ opens downward, if
 (a) $a \geq 0$ (b) $a = 0$ (c) $a < 0$ (d) $a > 0$
- (iii) The number of zeroes of the polynomial representing the graph in Fig. 2.6, is
 (a) 0 (b) 1 (c) 3 (d) 2

(iv) The zeroes of the polynomial representing the graph in Fig. 2.6, is

- (a) $-2, 3$ (b) $2, -3$ (c) $-2, 6$ (d) $2, 3$

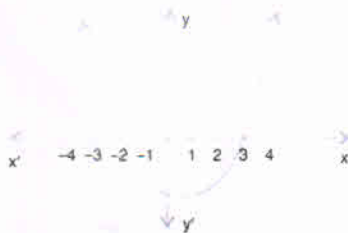


Fig. 2.6

(v) The polynomial representing the graph in Fig. 2.6 is given by

- (a) $x^2 - x - 6$ (b) $x^2 + x - 6$ (c) $x^2 - x + 6$ (d) $x^2 + x + 6$

13.

CASE STUDY BASED

EXAMPLE 25 To enhance the reading skills of grade X students, the school nominates you and two of your friends to set up a class library. There are two sections – section A and section B of grade X. There are 32 students in section A and 36 students in section B.



Section A



Section B

Fig. 1.1

Based on the above information answer the following:

- (i) What is the minimum number of books you will acquire for the class library, so that they can be distributed equally among students of section A or section B?
 (a) 144 (b) 128 (c) 288 (d) 272
- (ii) If the product of two positive integers is equal to the product of their HCF and LCM is true then, the HCF (32, 36) is
 (a) 2 (b) 4 (c) 6 (d) 8
- (iii) 36 can be expressed as a product of its primes as
 (a) $2^2 \times 3^2$ (b) $2^1 \times 3^3$ (c) $2^3 \times 3^1$ (d) $2^0 \times 3^0$
- (iv) $7 \times 11 \times 13 \times 15 + 15$ is a
 (a) Prime number (b) Composite number
 (c) Neither prime nor composite (d) None of the above
- (v) If p and q are positive integers such that $p = ab^2$ and $q = a^2b$, where a, b , are prime numbers then the LCM (p, q), is
 (a) ab (b) a^2b^2 (c) a^3b^2 (d) a^3b^3

14. For what value of k , the pair of linear equation $kx + y = k^2$ and $x + ky = 1$, have infinitely many solution?

15. (i) For which values of a and b do the following pair of linear equations have an infinite number of solutions?

$$2x + 3y = 7$$

$$(a - b)x + (a + b)y = 3a + b - 2$$

(ii) For which value of k will the following pair of linear equations have no solution?

$$Kx + 3y - (k-3) = 0$$

$$12x + ky - k = 0$$

16. Places A and B are 100 km apart on a highway. One car starts from A and another from B at the same time. If the cars travel in the same direction at different speeds, they meet in 5 hours. If they travel towards each other, they meet in 1 hour. What are the speeds of the two cars?

17. The sum of the digits of a two-digit number is 9. Also, nine times this number is twice the number obtained by reversing the order of the digits. Find the number.

18. Write and learn all formulas of first four chapter

19. Revise first four chapters as test will be held after vacation.

कक्षा - दसवीं व

दिनांक - ०६/०५/२३

ग्रीष्म ऋतु का गृहकार्य

प्रश्न-1) 'बाल गौरीय भगत' पाठ के शब्दार्थ सहित, प्रश्न अभ्यास व भाषा अध्ययन अपनी कार्यपुस्तिका में लिखिए।

प्रश्न-2) अपने क्षेत्र के नगर निगम / नगरपालिका को अपने मौदल्ले की साफ सफाई व स्वच्छता हेतु शिकायत पत्र लिखिए।

प्रश्न-3) किन्हीं दस नवीन शब्दों को अर्थ सहित लिखिए।

प्रश्न-4) निर्देशानुसार वाक्य बदलें -

- i) उसे घर आकर भोजन किया। (संयुक्त में)
- ii) सोहन हिन्दी पढ़ने शायरी जी के यहाँ गया है। (संयुक्त)
- iii) विरह बहुत अच्चा खिलाड़ी है लेकिन खेल नहीं होता। (शिका)
- iv) मजदूर मेहनत करता है, परन्तु काम नहीं पाता। (शिका व सरल)
- v) वह बाजार गया और फल बेकर आया। (सरल)
- vi) जब तक मोहन घर पहुँचा तब तक उसके पिता जी जा चुके थे। (सरल)
- vii) आने कहा कि मैं निर्दोष हूँ। (सरल)
- viii) सच बोलने वाले व्यक्ति को कोई झुं नहीं सकता। (शिका)
- ix) जैसे ही सुबह हुई, पक्षी पहचान लगे। (सरल)
- x) अपराधी होने के कारण उसे सजा हुई। (संयुक्त)

प्रश्न-5) 'द लिजेंड ऑफ भगत सिंह' फिल्म देखिए व उसमें जुड़ी लिखिए।

विषयाध्ययिका - नेहा साहनी
(प्र. स्ना. शि. - हिन्दी)

06/05/23

HOLIDAY HOMEWORK FOR CLASS 8 B (BIOLOGY - SCIENCE)

Preparation of Project File for Science Portfolio Internal Assessment on topics given in class from chapter Management of Natural Resources.

It must include:

Cover Page

Index

Content - explanation

References

Project is to be handwritten in A4 sheets and submitted in stick files.

Holiday Homework, KV NIT SILCHAR
Class XB, Science (Chemistry)

- *Homework should be done in separate notebook.*
- *Write questions also.*

1. A metal salt MX when exposed to light splits up to form metal M and a gas X_2 . Metal M is used in making ornaments whereas gas X_2 is used in making bleaching powder. The salt MX is itself used in black and white photography

- (a) What do you think metal M is?
- (b) What could be gas X_2 ?
- (c) Name the metal salt MX.
- (d) Name any two salt solutions which on mixing together can produce a precipitate of salt MX.
- (e) What type of chemical reaction takes place when salt MX is exposed to light? Write the equation of the reaction.

2. (a) Explain the term "corrosion" with an example. Write a chemical equation to show the process of corrosion of iron.

- (b) What special name is given to the corrosion of iron?
- (c) What type of chemical reaction is involved in the corrosion of iron?
- (d) Name any three objects (or structures) which are gradually damaged by the corrosion of iron and steel.

3. (a) What happens when an aqueous solution of sodium sulphate reacts with an aqueous solution of barium chloride?

- (b) Write the balanced chemical equation for the reaction which takes place.
- (c) State the physical conditions of reactants in which the reaction will not take place.
- (d) Name the type of chemical reaction which occurs.
- (e) Give one example of another reaction which is of the same type as the above reaction.

4. (a) Explain the term "rancidity". What damage is caused by rancidity?

- (b) What type of chemical reaction is responsible for causing rancidity?
- (c) State and explain the various methods for preventing or retarding rancidity of food.

5. Prepare 30 MCQs from the chapter "Chemical Reactions and Equations".

Class X A, B

Sub ÷ Art Education
Summer Vacation Holiday H-W

Make any 5 examples of Mono Points

Ex. Stencil and spray work.

Make Texture of different kinds
of surface like, Wood, Metal
Fabric, Nature objects etc.

Rudhey Shyam Sharma
TGT (A-E)

K.V. NIT SILCHAR

अवकाशकालीन गृहकार्यम् (मई-जून 2023)

कक्षा = X (B) विषयः = संस्कृतम्

- 1) साक्षांश लिखत (प्रथम पाठ एवं द्वितीय पाठ)
- 2) श्लोका कस्यश्चीकरणाय (प्रथम पाठ)
- 3) पुनरावृत्ति (प्रथम पाठ, द्वितीय पाठ)
- 4) शब्दरूपाणि (गुरु, स्त्री, शिव, कवि)
- 5) धातुरूपाणि (हस, पच, शिव) (5 लकारेषु)

Class X B
SST Holiday Homework

1. Learn all five chapters we have done.
2. Prepare 10 MCQs from each of the above mentioned chapters.
3. Read ch-2 of Geo and Pol.sc. Prepare notes, solve exercise and prepare 10 MCQs from both chapters.
4. Practice Map points of all above mentioned chapters according to the syllabus provided by CBSE.

अवकाशकालीन गृहकार्यम् (मई-जून 2023)

कक्षा = X (A) विषयः = संस्कृतम्

- 1) साक्षात् निश्चय (प्रथम पाठ एवं द्वितीय पाठ)
- 2) श्लोका कम्प्यूटरीकरणम् (प्रथम पाठ)
- 3) पुनरावृत्ति (प्रथम पाठ, द्वितीय पाठ)
- 4) शब्दरूपाणि (गुरु, स्त्री, शिव, कवि)
- 5) धातुरूपाणि (हस, पच, सेव) (5 लकारेषु)

1. Complete practical homework.
2. Solve the questions in science note book
3. Identify oxidised or reduced substances.



4. What happens when an aqueous solution of sodium sulphate reacts with an aqueous solution of barium chloride? State the physical conditions, of reactants in which the reaction between them will not take place - write the balanced chemical equation for the action of steam on iron.
5. 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.

Class X A
Social Science

Summer vacation Holiday H.W.

- ① The Rise of Nationalism in Europe
- ② Power sharing
- ③ Resources and development
- ④ Development

→ Do 10 MCQ. questions from each chapter

→ Do exercise of all four chapters mentioned above.

→ Prepare Map file and practice them as per Map list circulated by CBSE, chapterwise.

Raj Kumar Gupta

TGT SOST

K.V. NIT, Silchar.

Class X A, B

Sub :- Art Education
Summer Vacation Holiday H-W

1. Make any 5 examples of Mono Prints

Ex. Stencil and Spray work

Make Texture of different kinds
of surface like, Wood, Metal
Fabric, Nature objects etc.

Radhey Shyam Sharma
T.G-T (A-E)

K-V-NIT SILCHAR

Project

Topic:- Nelson Mandela: A Long walk to Freedom
[Internal assessment]

Page 1:- Cover page (School, Subject, Year, Name of student and Teacher).

Page 2:- Title of your project (Topic)

Page 3:- Contents (Index with page numbers).

Page 4 and 5

English: Prepare a biographical sketch of Nelson Mandela mentioning all his details like Date of birth, education, political achievements, family life etc. in bullet points.
(1 page, points only).

Art: Draw a sketch of Nelson Mandela (Portrait).

Page 6 and 7

English: Write an article on South Africa mentioning its capital, area, GDP, languages spoken, history etc. (2000 words)

Art: Draw a map of South Africa and point out Mandela's village in it.

Page 8 and 9

English: Write a detailed essay about any one of the following topics

→ The African National Congress

→ The costumes of South Africa

Art: Draw/Paste pictures related to the topic you have chosen from the above two.

Page 10 and 11

English: Imagine that you are a famous news anchor and you get a chance to interview Nelson Mandela. Write the interview in the form of question and answer in about 1000 words asking Mandela questions that are important for you in today's generation.

Art: Draw any historical picture of Mandela addressing the people/giving an interview.

Page 12

English and art: Imagine that you are young Nelson Mandela and you are working hard to free your country from Apartheid. Design a poster to be pasted all over the city calling people to rise and revolt against the white supremacy and racism. The poster should be colourful and appealing to the public.

Page 13 and 14

English: Write a detailed book review of Nelson Mandela's Biography titled 'A long walk to freedom' in your own words.

Art: Design a book cover for his biography using your own imagination.

Instruction: - Anything copied from the internet or from each other will not be accepted.

- Make this file as decorative as you can. Make the file folder from scrap materials like handmade sheets/old maps/calendars etc.
- Draw or paste beautiful pictures to enhance your project.
- Decorate individual pages in the file using colorful pens/markers/erasers etc.
- Stick to the word limit for the writing portion. Do not write less than required.

केन्द्रीय विद्यालय एन. आई. टी., सिलचर

ग्रीष्मकालीन अवकाश गृहकार्य - 2023-24

कक्षा -10

1- पाठ्यक्रम की कोई भी एक कविता याद करके तथा उसका वीडियो बनाकर मुझे इस ई-मेल anitakv2018@gmail.com पर प्रेषित करें। (कविता डेढ़ मिनट से पाँच मिनट)

2. 'पर्यावरण - संरक्षण' पर या अपने द्वारा बनाई गई 'पहाड़ी चॉकलेट' पर विज्ञापन तैयार करें। (40 शब्दों में)

3. मित्र की नौकरी लगने पर उसे शुभकामना संदेश प्रेषित करें। (40 शब्दों में)

4. 'भाग्य और पुरुषार्थ' अथवा 'स्वतंत्रता का अनूत महोत्सव' में से किसी एक विषय पर अनुच्छेद लिखिए। (120 शब्दों में)

5. निम्नलिखित में से कोई दो फ़िल्में देखिए और उनसे मिलने वाली पाँच प्रमुख शिक्षाएँ लिखिए :-

i :- <https://youtu.be/gZy4vIGf7MY>

I am kalam

ii :- <https://youtu.be/CPXkijYI9Y0>

Chalk n duster

iii :- <https://youtu.be/a1G1Sg3-g2g>

Taare zameen par

iv :- <https://youtu.be/l3Sgdk88gH4>

Baghban

v :- <https://youtu.be/epKzi21TRN8>

उम्मीद (लघु फ़िल्म)

vi :- <https://youtu.be/OnhZDZXzBz4>

रददी लाइब्रेरी (लघु फ़िल्म)

6. असम राज्य के दर्शनीय स्थलों की जानकारी देते हुए मुम्बई - स्थित अपने मित्र को पत्र लिखिए। (100 शब्दों में)

7. 80 शब्दों में उपलब्ध रिक्त (सोना मॉडर्न पब्लिक स्कूल में हिंदी - अध्यापक के पद हेतु) के लिए एक स्ववृत्त (biodata) लिखिए।

8. राजस्थान के किन्हीं दस स्वतंत्रता संग्राम सेनानियों की परियोजना फ़ाइल बनाएँ, जिसमें इन सेनानियों की फ़ोटो, नाम, जन्म - मृत्यु तिथि, महत्त्वपूर्ण कार्य/ स्वतंत्रता प्राप्ति हेतु सहयोग आदि का वर्णन हो। (A4 साइज़ पेपर में)

9. कला समेकित परियोजना :- राजस्थान का जनजीवन, भाषाओं पर पीपीटी व वीडियो (Art

Integrated Project) बनाकर anitakv2018@gmail.com पर प्रेषित करें ।

10. संज्ञा, सर्वनाम, विशेषण, क्रिया, लिंग, वचन एवं अव्यय(अविकारी) आदि के भेदों को याद कीजिए । ग्रीष्मकालीन अवकाश के बाद आपसे संबंधित विषयों में से प्रश्न पूछे जाएंगे ।

नोट : प्रश्न संख्या 1, 9 व 10 को छोड़कर शेष प्रश्न A4 साइज़ पेपर में करके, फाइल बनाकर जमा करना है ।

Session-2023-24

MATHS

HOLIDAY HOMEWORK CLASS X/A

Instructions : Do all work in class notebook. Write questions also. For case based questions you can take print out of questions then paste questions in notebook.

1. Solve graphically each of the following systems of linear equations. Also find the coordinates of the points where the lines meet axis of y.

(i) $2x - 5y + 4 = 0,$

$2x + y - 8 = 0$

[CBSE 2005]

(ii) $3x + 2y = 12$

$5x - 2y = 4$

[CBSE 2006C]

(iii) $2x + y - 11 = 0,$

$x - y - 1 = 0$

[CBSE 2000C]

(iv) $x + 2y - 7 = 0,$

$2x - y - 4 = 0$

[CBSE 2000C]

2.

EXAMPLE 11 Find the values of p and q for which the following system of equations has infinite number of solutions:

$2x + 3y = 7$

$(p + q)x + (2p - q)y = 21$

[CBSE 2007]

3.

The sum of the squares of two consecutive odd positive integers is 394. Find them.

[CBSE 2009, 2017]

4.

If the equation $(1 + m^2)x^2 + 2mcx + (c^2 - a^2) = 0$ has equal roots, prove that $c^2 = a^2(1 + m^2)$. [CBSE 2017]

5.

The sum of the numerator and denominator of a fraction is 3 less than twice the denominator. If the numerator and denominator are decreased by 1, the numerator becomes half the denominator. Determine the fraction. [CBSE 2001C, 2010]

6.

EXAMPLE 12 For what value of k , will the system of equations

$x + 2y = 5$

$3x + ky - 15 = 0.$

has (i) a unique solution? (ii) no solution?

7. Find the values of k for which the following equations have real roots
- (i) $2x^2 + kx + 3 = 0$ [NCERT] (ii) $kx(x - 2) + 6 = 0$ [NCERT]
 (iii) $x^2 - 4kx + k = 0$ [CBSE 2012] (iv) $kx(x - 2\sqrt{5}) + 10 = 0$ [CBSE]
 (v) $kx(x - 3) + 9 = 0$ [CBSE 2014] (vi) $4x^2 + kx + 3 = 0$ [CBSE]

8.

ASSERTION-REASON

Each of the following questions contains STATEMENT-1 (Assertion) and STATEMENT-2 (Reason) and has following four choices (a), (b), (c) and (d), only one of which is the correct answer. Mark the correct choice.

- (a) Statement-1 is true, Statement-2 is true; Statement-2 is a correct explanation for Statement-1.
 (b) Statement-1 is true, Statement-2 is true; Statement-2 is not a correct explanation for Statement-1.
 (c) Statement-1 is true, Statement-2 is false.
 (d) Statement-1 is false, Statement-2 is true.

- (i) Statement-1 (Assertion): If the system of equations $3x + 6y = 10$ and $2x - ky + 5 = 0$ is inconsistent, then $k = -4$.
 Statement-2 (Reason): The system of equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ is inconsistent iff $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$.

- (ii) Statement-1 (Assertion): If a pair of linear equations represent coincident lines, then the equations are consistent and have a unique solution.
 Statement-2 (Reason): A pair of linear equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ represents coincident lines iff $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$.

- (iii) Statement-1 (Assertion): If zeroes of the polynomial $f(x) = 5x^2 - 11x - (k - 3)$ are reciprocal of each other, then $k = -2$.
 Statement-2 (Reason): The product of the zeroes of the polynomial $ax^2 + bx + c$ is $-\frac{c}{a}$.

- (iv) Statement-1 (Assertion): The system of linear equations $9x + 3y + 12 = 0$ and $18x + 6y + 24 = 0$ have infinitely many solutions.
 Statement-2 (Reason): The system of linear equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ have infinitely many solutions, if $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$.

- (v) Statement-1 (Assertion): If the sum of the zeroes of the quadratic polynomial $f(x) = 3x^2 + kx + 5$ is $-\frac{7}{3}$, then the value of k is 2.
 Statement-2 (Reason): The product of zeroes of the polynomial $ax^2 + bx + c$ is $-\frac{c}{a}$.

CASE STUDY BASED

33. Teachers and students of class X of a school had gone to Nandan Kannan for study tour. After visiting different places of Nandan Kannan, lastly, they visited bird's sanctuary and deer park. Rohan is a clever boy and keen observer. He put the question to his friends "How many birds are there and how many deer are there (at particular time) in Nandan Kannan?" Rahul's friend, Nishith gave the correct answer as follows:
 'Nishith answered that total animals have 1000 eyes and 1400 legs.'

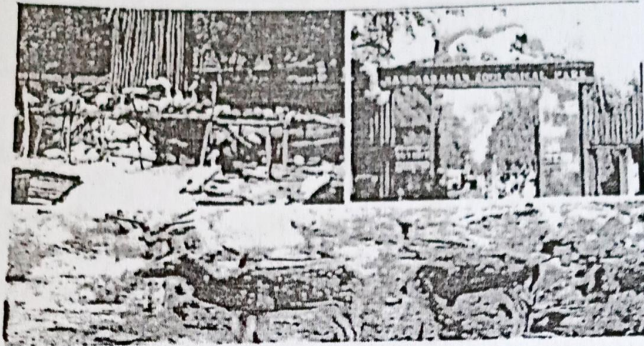


Fig. 3.7

- (i) If x and y be the number of birds and deer respectively, what is the equation of total number of eyes?
 (a) $x + y = 1000$ (b) $x + y = 500$ (c) $x - y = 1000$ (d) $x - y = 500$
- (ii) What is the equation of total number of legs?
 (a) $2x + y = 70$ (b) $x + 2y = 500$ (c) $x + 2y = 700$ (d) $2x - y = 500$
- (iii) How many birds are there in the Zoo?
 (a) 1000 (b) 5000 (c) 300 (d) 200
- (iv) How many deer are there in the Zoo?

47. On May 20, 2020 super cyclonic storm Amphan hit West Bengal. It caused widespread damage in West Bengal. Due to this thousand of trees were uprooted and electric poles were bent out. Some electric poles bent into the shape of a parabola shown below. A parabola is represented by a quadratic polynomial. Based on the above information answer the following questions:

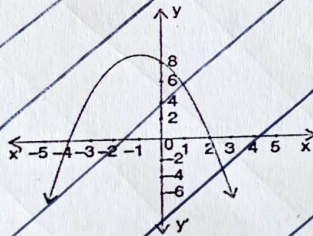


Fig. 2.19

- (i) If the parabola shown in Fig. 2.19 represents the quadratic polynomial $p(x) = ax^2 + bx + c$, then
 (a) $a > 0$ (b) $a < 0$ (c) $a = 0$ (d) $2a + b = 0$
- (ii) Zeros of the quadratic polynomial represented by the parabola are
 (a) 2 and 4 (b) -4 and 2 (c) 4 and -2 (d) -2 and 2
- (iii) The quadratic polynomial $p(x)$ representing the given parabola is
 (a) $x^2 + 4x - 8$ (b) $x^2 + 2x - 8$ (c) $-x^2 + 2x - 8$ (d) $-x^2 - 2x + 8$
- (iv) The value of $p(x)$ at $x = 0$ is
 (a) -8 (b) 8 (c) 4 (d) -4

11.

EXAMPLE 12 Ravish is planning to buy a house whose layout is given below. The design and the measurement has been made such that areas of two bedrooms and kitchen together is 95 m^2 .

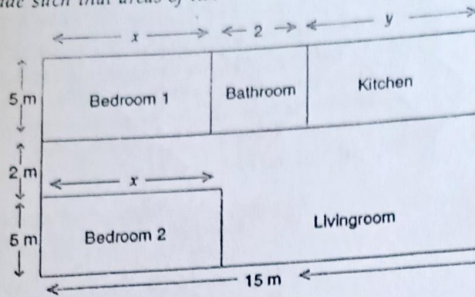


Fig. 3.1

- (i) The pair of linear equations in two variables describing this situation is
 (a) $2x + y = 19, x + y = 13$ (b) $x + 2y = 19, x + y = 13$
 (c) $2x + y = 13, x + y = 13$ (d) $2x + y = 13, x + y = 19$
- (ii) The perimeter and area of the house are respectively
 (a) 54 m, 180 m^2 (b) 180 m, 54 m^2 (c) 27 m, 90 m^2 (d) 108 m, 180 m^2

(iii) The value of xy is (a) 42 (b) 48 (c) 49 (d) 13

(iv) The value of $x - y$ is (a) 13 (b) 1 (c) -1 (d) .42

(v) The cost of laying tiles in the kitchen at the rate of ₹ 70 per m^2 is (a) ₹ 2400 (b) ₹ 2450 (c) ₹ 2450 (d) ₹ 2550

12.

EXAMPLE 30 An asana is a body posture, originally and still a general term for a sitting meditation pose, and later extended in hatha yoga and modern yoga as exercise, to any type of pose or position, adding reclining, standing, inverted twisting and balancing poses. In the following figure, one can observe that poses can be related to representation of a quadratic polynomial.

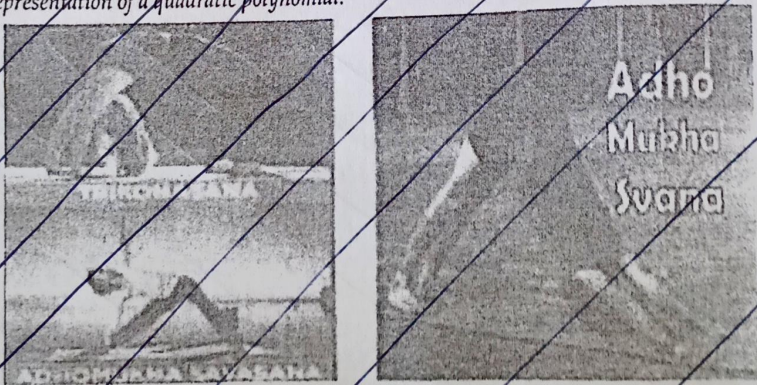


Fig. 2.5

- (i) The shape of the poses shown is (a) Spiral (b) Ellipse (c) Linear (d) Parabola
- (ii) The graph of the parabola representing polynomial $p(x) = ax^2 + bx + c$ opens downward, if (a) $a \geq 0$ (b) $a = 0$ (c) $a < 0$ (d) $a > 0$
- (iii) The number of zeroes of the polynomial representing the graph in Fig. 2.6 is (a) 0 (b) 1 (c) 3 (d) 2

(iv) The zeroes of the polynomial representing the graph in Fig. 2.6, is

- (a) $-2, 3$ (b) $2, -3$ (c) $-2, 6$ (d) $2, 3$

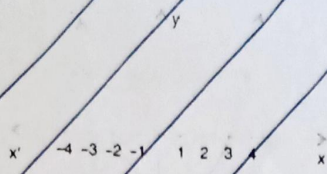


Fig. 2.6

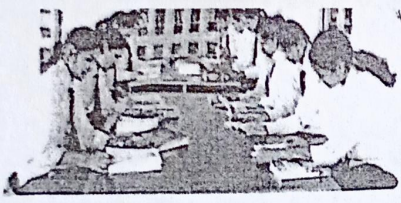
(v) The polynomial representing the graph in Fig. 2.6 is given by

- (a) $x^2 - x - 6$ (b) $x^2 + x - 6$ (c) $x^2 - x + 6$ (d) $x^2 + x + 6$

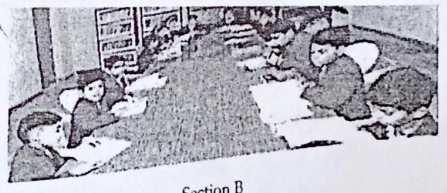
13.

CASE STUDY BASED

EXAMPLE 25 To enhance the reading skills of grade X students, the school nominates you and two of your friends to set up a class library. There are two sections – section A and section B of grade X. There are 32 students in section A and 36 students in section B.



Section A



Section B

Fig. 1.1

Based on the above information answer the following:

- (i) What is the minimum number of books you will acquire for the class library, so that they can be distributed equally among students of section A or section B?
 (a) 144 (b) 128 (c) 288 (d) 272
- (ii) If the product of two positive integers is equal to the product of their HCF and LCM is true then, the HCF (32, 36) is
 (a) 2 (b) 4 (c) 6 (d) 8
- (iii) 36 can be expressed as a product of its primes as
 (a) $2^2 \times 3^2$ (b) $2^1 \times 3^3$ (c) $2^3 \times 3^1$ (d) $2^0 \times 3^0$
- (iv) $7 \times 11 \times 13 \times 15 + 15$ is a
 (a) Prime number (b) Composite number
 (c) Neither prime nor composite (d) None of the above
- (v) If p and q are positive integers such that $p = ab^2$ and $q = a^2b$, where a, b , are prime numbers then the LCM (p, q), is
 (a) ab (b) a^2b^2 (c) a^3b^2 (d) a^3b^3

14. . For what value of k , the pair of linear equation $kx + y = k^2$ and $x + ky = 1$, have infinitely many solution?

15. . (i) For which values of a and b do the following pair of linear equations have an infinite number of solutions?

$$2x + 3y = 7$$

$$(a - b)x + (a + b)y = 3a + b - 2$$

(ii) For which value of k will the following pair of linear equations have no solution?

$$Kx + 3y - (k-3) = 0$$

$$12x + ky - k = 0$$

~~16. Places A and B are 100 km apart on a highway. One car starts from A and another from B at the same time. If the cars travel in the same direction at different speeds, they meet in 5 hours. If they travel towards each other, they meet in 1 hour. What are the speeds of the two cars?~~

17. The sum of the digits of a two-digit number is 9. Also, nine times this number is twice the number obtained by reversing the order of the digits. Find the number.

18. Write and learn all formulas of first ³four chapter

19. . Revise first ³four chapters as test will be held after vacation.