

MDS PUBLIC SCHOOL, MADINA
SESSION – 2025-26
CLASS – 10TH
SUMMER VACATION HOMEWORK



The summer days are back again!! And its vacation time again! There's sun and shade And water to wade Time for some fun and frolic With ice creams to lick Activities to indulge in Places to explore Yes!! It's vacation time again!!!

Dear Parents

We believe children are natural learners and have an innate curiosity. They take pleasure in discovery. Hence, we have made an endeavour to induce and enhance thinking skills in them by making them be actively doing things for themselves. Through a lot of physical activity, movement, exploring and first-hand learning by doing things on their own, we facilitate that their learning goes into their long-term memory. We are sure you are there with us in this endeavour of ours.

Dear Students

Summer vacation is that time of the year when we have the time of our life. We relax, spend time with our family and friends and visit places galore. It's also the time to explore our talents, learn new skills and engage in different activities. Some suggestions to make the summer break time more special and exciting for you.

1. Learn a new sport or skill and engage in physical activities.
2. Learn dignity of labour by doing things yourself.
3. Plant a sapling and take care of it.
4. Spend quality time with your family members.

GENERAL INSTRUCTIONS:

1. Complete the holiday homework of all the subjects in the holidays homework notebook in neat and clear Handwriting.
2. Holiday Homework will be a part of Internal Assessment. It must be done properly according to the instructions given by the teachers. Beautiful and systematic work will carry extra marks.
3. After summer vacation, the Summer Holiday Homework Notebook/Scrapbook/Project File/Lab Manuals (which-ever applicable) must be submitted in the School for Internal Assessment.
4. Parents kindly make sure your wards complete all the work assigned. Work to be done on regular basis.

Wishing every child, constructive holidays!

MDS PUBLIC SCHOOL, MADINA
SESSION – 2025-26
CLASS – 10TH
SUMMER VACATION HOMEWORK

ENGLISH :-

1. My Holiday Diary (Notebook Activity)

- ❖ Write any 3 diary entries (100–120 words each):
- ❖ A fun day with family/friends
- ❖ A new thing I learned this summer
- ❖ A place I visited or want to visit

2. Picture Description

- ❖ Paste or draw any one interesting picture (can be from a magazine or newspaper) and write 8–10 lines describing it.

3. Movie Review (Simple & Fun)

- ❖ Watch any English movie (animated or inspirational)
Suggested: Finding Nemo, The Lion King, Coco, Wonder
Then answer:
- ❖ What is the movie about?
- ❖ Your favourite character and why?
- ❖ What did you learn from it?

4. Poem Time – Write Your Own Poem

- ❖ Write a short and simple poem (8–10 lines) on any one topic:
- ❖ My Summer Holidays
- ❖ My Pet / My Best Friend
- ❖ My Dream

5. Vocabulary Bank

- ❖ Make a “word bank” of 10 new English words:
- ❖ Write their meanings
- ❖ Make 1 sentence for each
- ❖ Decorate your work with colours or pictures

6. Handwriting Practice

- ❖ Copy the following famous quote in beautiful handwriting (2 times):

“The future belongs to those who believe in the beauty of their dreams.”
Eleanor Roosevelt

SOCIAL SCIENCE -

Instructions:

- Complete all work in a neat and organized manner.
- Use maps, images, and headings wherever necessary.
- Submit in a project file or notebook format.
- Marks will be awarded for creativity, effort, and presentation.

HISTORY

- Chapter: Nationalism in India

Task:

- ❖ Prepare a timeline of major events in the Indian National Movement (1915-1947).
- ❖ Create a flowchart showing key movements: Non-Cooperation, Civil Disobedience, Quit India.
- ❖ Write a short note (200 words) on the role of Mahatma Gandhi in uniting Indians.

GEOGRAPHY

- Chapter: Resources and Development / Agriculture

Task:

- ❖ Prepare a report on different types of soil in India. Include a map showing their distribution.
- ❖ Research any one major cropping pattern in India and present its:
 - ❖ Climate requirement
 - ❖ Areas grown
 - ❖ Challenges faced by farmers

POLITICAL SCIENCE

- Chapter: Power Sharing / Federalism

Task:

- ❖ Create a comparative chart showing the division of power between Central and State governments in India.
- ❖ Write a short note (100–150 words) on the importance of power sharing in a democracy.

ECONOMICS

- Chapter: Development / Sectors of the Economy

Task:

- ❖ Write a paragraph on the different goals of development with examples (200 words).
- ❖ Prepare a pie chart or bar graph showing the contribution of Primary, Secondary, and Tertiary sectors to India's GDP (use recent data from internet/books).

5. PROJECT WORK (Any One of the Following)

- ❖ Choose one topic for a creative project (8–10 pages):
- ❖ Consumer Rights (include posters, slogans, real-life cases)
- ❖ Sustainable Development Goals (SDGs) and India's efforts
- ❖ "Digital India" and its impact on the Indian economy
- ❖ Pollution and Measures for Control

हिंदी

- 1.) कविता 1 से 6 तक के प्रश्न उत्तर उद्देश्य शब्दार्थ याद करें व इन कविताओं से पांच पांच आंतरिक प्रश्न ढूँढ कर लिखें ।
- 2.) पर्यावरण संरक्षण के लिए संदेश लिखें।
- 3.) शर्मा सोसाइटी के मुख्य सीवर की मुरम्मत हेतु लगभग 100 शब्दों में ई-मेल लिखिए।
- 4.) "जंक फूड के खिलाफ छोड़े जंग" विषय पर अनुच्छेद लिखें।
- 5.) "गर्मी के दिनों में आपकी दिनचर्या क्या रहेगी ? " इसके विषय में लिखें।
- 6.) अलंकार और वाच्य के दस - दस उदाहरण लिखें।
- 7.) कोरोना वायरस बीमारी पर बचाव के लिए विज्ञापन लिखें
- 8.) पहलगाम घटना पर एक नोट लिखें।
- 9.) निम्न में से एक विषय पर परियोजना कार्य तैयार करें।
 - सूरदास
 - महादेवी वर्मा
 - तुलसीदास

Information Technology

1. Revise all units done in class.
2. Make a powerpoint presentation on the following units (include all main topics):
 - Maintain workplace safety and security
 - Database management system
 - Digital Documentation
 - Electronic Spreadsheets
3. Do the given questions :
 1. What are the learning objectives of communication?
 2. Why do we say that an entrepreneur should be open-minded?
 3. How is self-regulation connected to the ability to work independently?
4. Write a short note on the following:

- i. DBMS
 - ii. Database Server
 - iii. Data Integrity
 - iv. Record
5. How we can prevent computer against attack by viruses?.
 6. “Green economy promotes sustainable development”. Justify the statement.
 7. What do you understand by Anchoring in Word Processor?
 8. What do you mean by Sorting in a Spreadsheet?
 9. State any four etiquettes to be followed while chatting on the internet.
 10. How is Goal Seek different from Solver in a Spreadsheet?
 11. Differentiate between a Primary key and Foreign key.
 12. What is the importance of healthy lifestyle? Give any four points related to it.
 13. What do you understand by the term Table of Contents? List the characteristics of a good ‘Table of content’ in a word processor.
 14. Explain the term ‘Scenarios’ in relation to the Spreadsheets with example.
 15. Explain different kinds of online threats.
 16. Explain the term “Referential Integrity”. Why is it important in a database?
 17. Consider the following Vendor table and write the queries for the following:

Table Datasheet

SUB_CODE	SUB_NAME	DATE OF EXAM	DAYS
E001	ENGLISH	11-03-2021	MONDAY
H002	HINDI	15-03-2021	FRIDAY
S003	SOCIAL SCI.	18-03-2021	MONDAY
S004	SCIENCE	21-03-2021	THURSDAY

- i. Write a SQL command to display the records in ascending order by date of exam.
- ii. Write a query to display the above date sheet.
- iii. Write a query to display the subject name and date of the exam held on ‘Monday’
- iv. Write a SQL command to display the date of exam and Sub_Name of Science subject.

PHYSICS

1. Make mind map of all formulas of ch - 9(Light: Reflection and Refraction) and ch – 10 (Human eye) in your fair note book.

2. Make a project file on one of the following topics-
 - a) Reflection of light
 - b) Refraction of light
 - c) Human eye
 - d) Defects of human eye
 - e) Atmospheric Refraction and Scattering of light
3. Solve the following assignments in your notebook.

ASSIGNMENT - 1

1. Identify the device used as a spherical mirror or lens in following cases, when the image formed is virtual and erect in each case.
 - a) Object is placed between device and its focus, image formed is enlarged and behind it.
 - b) Object is placed between the focus and device, image formed is enlarged and on the same side as that of the object.
 - c) Object is placed between infinity and device, image formed is diminished and between focus and optical centre on the same side as that of the object.
 - d) Object is placed between infinity and device, image formed is diminished and between pole and focus, behind it.
2. Why does a light ray incident on a rectangular glass slab immersed in any medium emerges parallel to itself ? Explain using a diagram.
3. A pencil when dipped in water in a glass tumbler appears to be bent at the interface of air and water. Will the pencil appear to be bent to the same extent, if instead of water we use liquids like, kerosene or turpentine. Support your answer with reason.
4. How is the refractive index of a medium related to the speed of light? Obtain an expression for refractive index of a medium with respect to another in terms of speed of light in these two media?
5. Refractive index of diamond with respect to glass is 1.6 and absolute refractive index of glass 1.5. Find out the absolute refractive index of diamond.
6. A convex lens of focal length 20 cm can produce a magnified virtual as well as real image. Is this a correct statement? If yes, where shall the object be placed in each case for obtaining these images?
7. Sudha finds out that the sharp image of the window pane of her science laboratory is formed at a distance of 15 cm from the lens. She now tries to focus the building visible to her outside the window instead of the window pane without disturbing the lens. In which direction will she move the screen to obtain a sharp image of the building? What is the focal length?
8. How are power and the focal length are related to each other ? If you have two lenses of 20 cm and 40 centimeter focal length .which one have more converging power ?

9. Draw the ray diagrams of concave mirror in the following cases :
 - a) object placed between pole and focus
 - b) the object placed beyond C
 - c) the object placed at Infinity
10. Which physical quantity remains constant during refraction of light?
11. An object is placed perpendicular to the principal axis of a convex lens at a distance of 15 cm. If the focal length of a convex lens is 10 cm, find the nature and position of the image.
12. Where should the object be placed so that a real image behind the lens at a distance 30 cm can be formed by a converging lens of 15 cm focal length ?
13. Preeti stands in front of the lens at a distance of 17 cm. If her image is formed in front of the lens at 10 cm, find the focal length and type of the lens.
14. Where will the image be produced if an object is placed at a distance of 6 cm in front of a concave lens of focal length equal to 3 cm?

ASSIGNMENT - 2

1. What is short sight? How can it be corrected?
2. A person having a myopic eye used the concave lens of focal length 50cm. What is the power of the lens?
3. Define “least distance of distinct vision”.
4. How does the eye adjust itself to deal with light of varying intensity? When is a person said to have developed cataract in his eye? How is the vision of a person having cataract restored?
5. What are the common defects of vision that can be corrected by the use of suitable eye glasses or spectacles?
6. Explain presbyopia.
7. A person uses convex lens spectacles. What vision defect does he have? Draw a diagram
 - (i) to show the defective eye
 - (ii) to show the correction with the lens.
8. Explain the angle of prism.
9. A 14-year old student is not able to see clearly the questions written on the blackboard placed at a distance of 5 m from him.
 - (a) Name the defect of vision he is suffering from.
 - (b) With the help of labelled ray diagrams show how this defect can be corrected.
 - (c) Name the type of lens used to correct this defect.
10. When the light rays are meet behind the retina then answer the questions:
 - (a) Which defect of vision is represented in this case? Give reason for your answer.
 - (b) What could be the two causes of this defect?
 - (c) With the help of a diagram show how this defect can be corrected by.
11. Draw a ray diagram to show the refraction of light through a glass prism. Mark on it (a) the incident ray. (b) the emergent ray and (c) the angle of Deviation.

12. What is myopia (near-sightedness)? Draw a ray diagram to show how it can be corrected using a lens.
13. What is Dispersion of light? Explain its cause and draw diagram of it. Also explain which colour bend least and which colour bend most and why?
14. Why the colour of sky appears to be black instead of blue for astronauts?

BIOLOGY :

Important Instructions :

- All the work must be prepared on A4 size sheet and a separate folders for it.
- Name of the School , title of the project, Submitted to and Submitted by all such details must be filled on the cover page

Revise :

- ❖ Chapter-5 (Life process) , Chapter-7 (How do organisms reproduce) and also practice its internal questions, intext questions and textual questions .
- ❖ Write 5 keywords in your holiday homework notebook daily.

Students are divided into Group A (Odd Roll Numbers) and Group B (Even Roll Numbers).

Group A – Odd Roll Numbers (1, 3, 5, ...)

Draw well labelled diagram (on A4 size sheet)of a:

1. Human Digestive System
2. Respiration – Aerobic vs Anaerobic
3. Binary Fission in Amoeba
4. Budding in Yeast
5. Human Female Reproductive System
6. Fertilization and implantation (with zygote development in uterus)
7. Sectional view of the Human Heart
8. Blood circulation in human body (Double circulation)
9. Germination of pollen on stigma
10. Human Respiratory System

Group B – Even Roll Numbers (2, 4, 6, ...)

Draw well labelled diagram (on A4 size sheet) of a:

1. Exchange of gases in alveoli (diagram of alveolus)
2. Human Circulatory System (including heart and blood vessels)

3. Sectional view of the Human Heart
4. Human Excretory System
5. Structure of Nephron
6. Fragmentation in Spirogyra
7. Human Male Reproductive System
8. Spore Formation in Rhizopus
9. Vegetative Propagation in Plants (e.g., Bryophyllum)
10. Longitudinal Section (L.S.) of a Flower

CHEMISTRY

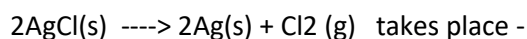
- Do all intext and exercise questions of chapter - 1 (Chemical reactions and equations), Chapter -2 (Acids,base and Salts) and chapter - 3 (Metals and non- metals) .
- Project work
Make one chart of types of chemical reactions

ASSIGNMENT

Chapter -1 (Chemical reactions and equations)

Types of chemical reactions

1.The chemical reaction:

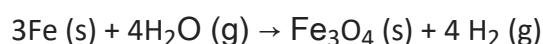


- | | |
|-----------------|-------------------------|
| (a) in dark | (b) in sunlight |
| (c) on heating. | (d) Under high pressure |

2. Which of the following is a displacement reaction?

- (a) $\text{MgCO}_3 \longrightarrow \text{MgO} + \text{CO}_2$
 (b) $2\text{Na} + 2\text{H}_2\text{O} \longrightarrow 2\text{NaOH} + \text{H}_2$
 (c) $2\text{H}_2\text{O} + \text{O}_2 \longrightarrow 2\text{H}_2\text{O}_2$
 (d) $2\text{Pb(NO}_3)_2 \xrightarrow{\text{Heat}} 2\text{PbO} + 4\text{NO}_2 + \text{O}_2$

3.Which of the following statements about the given reaction are correct?

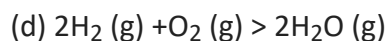
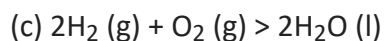
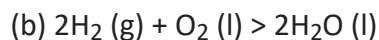
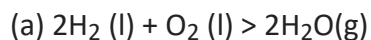


- | | |
|---|-------------------|
| (i) Iron metal is getting oxidised | (b) (i) and (iv) |
| (ii) Water is getting reduced | (d) (ii) and (iv) |
| (iii) Water is acting as reducing agent | |
| (iv) Water is acting as oxidising agent | |
| (a) (i), (ii) and (iii) | |
| (c) (i), (ii) and (iv) | |

4. Which of the following are exothermic processes?

- | | |
|---------------------------------------|--------------------------|
| (i) Reaction of water with quick lime | (ii) Dilution of an acid |
|---------------------------------------|--------------------------|

states of the reactants and products involved at reaction temperature?



Corrosion and Rancidity

16. The condition produced by aerial oxidation of fats and oils in foods marked by unpleasant smell and taste is called:

(a) antioxidation

(b) reduction

(c) rancidity

(d) corrosion

17. When Ag is exposed to air it gets a black coating of

(a) AgNO_3

(b) Ag_2S

(c) Ag_2O

(d) Ag_2CO_3

18. Two antioxidants which are usually added to fat and oil containing foods to prevent rancidity, are, ...

19. is the process in which metals are eaten up gradually by the action of air, moisture or a chemical on their surface.

20. Which of the following gases can be used for storage ?

(a) Carbon dioxide or Oxygen

(b) Nitrogen or Oxygen

(c) Carbon dioxide or Helium

(d) Helium or Nitrogen

MATHS

• Do the given sums in separate notebook.

1. Express each number as a product of its prime factors:

(i) 140

(ii) 156

(iii) 3825

(iv) 5005

(v) 7429

2. Given that $\text{HCF}(306, 657) = 9$, find $\text{LCM}(306, 657)$.

3. Prove that $3 + 2\sqrt{5}$ is irrational.

4. Given that $\sqrt{2}$ is irrational, prove that $(5 + 3\sqrt{2})$ is an irrational number.

5. Write the smallest number which is divisible by both 360 and 657.

6. Find the value of "p" from the polynomial $x^2 + 3x + p$, if one of the zeroes of the polynomial is 2.

7. α and β are zeroes of the quadratic polynomial $x^2 - 6x + y$. Find the value of 'y' if $3\alpha + 2\beta = 20$.

8. Find a quadratic polynomial whose zeroes are reciprocals of the zeroes of the polynomial $f(x) = ax^2 + bx + c$, $a \neq 0$, $c \neq 0$.

9. Find a quadratic polynomial, the sum and product of whose zeroes are $\sqrt{2}$ and $-3/2$, respectively. Also find its zeroes.

10. Find the zeroes of the quadratic polynomial $7y^2 - (11/3)y - (2/3)$ and verify the relationship between the zeroes and the coefficients.

11. A motorboat whose speed is 18 km/hr in still water takes 1 hr more to go 24 km upstream than to return downstream to the same spot. Find the speed of the stream.

12. For which values of a and b do the following pair of linear equations have infinite solutions? $2x + 3y = 7$

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

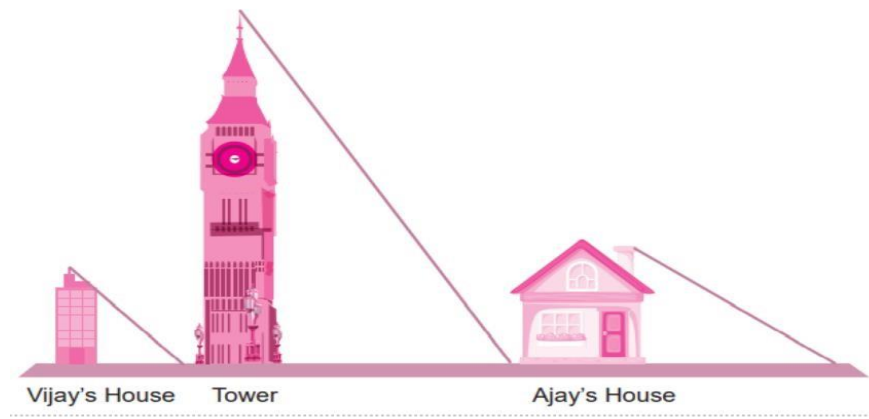
13. Five years hence, the age of Jacob will be three times that of his son. Five years ago, Jacob's age was seven times that of his son. What are their present ages?
14. Draw the graphs of the equations $x - y + 1 = 0$ and $3x + 2y - 12 = 0$. Determine the coordinates of the vertices of the triangle formed by these lines and the x-axis, and shade the triangular region.
15. Two lines are represented by the equations $x + 2y - 4 = 0$ and $2x + 4y - 12 = 0$. Represent this situation geometrically.
16. Solve the following pair of equations by substitution method: $7x - 15y = 2$ $x + 2y = 3$
17. The ratio of incomes of two persons is 9 : 7 and the ratio of their expenditures is 4 : 18. If each of them manages to save Rs. 2000 per month, find their monthly incomes.
18. Solve the following pair of linear equations by the substitution and cross multiplication methods :
 $8x + 5y = 9$
 $3x + 2y = 4$
19. Solve the following pairs of equations by reducing them to a pair of linear equations:
 $6x + 3y = 6xy$
 $2x + 4y = 5xy$
20. The students of a class are made to stand in rows. If 3 students are extra in a row, there would be 1 row less. If 3 students are less in a row, there would be 2 rows more. Find the number of students in the class
21. Find the nature of roots of the quadratic equation $2x^2 - 4x + 3 = 0$.
22. Write all the values of p for which the quadratic equation $x^2 + px + 16 = 0$ has equal roots. Find the roots of the equation so obtained.
23. A plane left 30 minutes late than its scheduled time and in order to reach the destination 1500 km away in time, it had to increase its speed by 100 km/hr from the usual speed. Find its usual speed.
24. If $ad \neq bc$, then prove that the equation $(a^2 + b^2)x^2 + 2(ac + bd)x + (c^2 + d^2) = 0$ has no real roots.
25. A train travels at a certain average speed for a distance of 63 km and then travels at a distance of 72 km at an average speed of 6 km/hr more than its original speed. If it takes 3 hours to complete the total journey, what is the original average speed?
26. Show that $(a - b)^2$, $(a^2 + b^2)$ and $(a + b)^2$ are in AP.
27. Find the common difference of the Arithmetic Progression (AP)
 $(1/a)$, $(3 - a)/3a$, $(3 - 2a)/3a, \dots$ ($a \neq 0$)
28. Which term of the Arithmetic Progression -7, -12, -17, -22, ... will be -82? Is -100 any term of the AP? Give a reason for your answer.
29. How many terms of the Arithmetic Progression 45, 39, 33, ... must be taken so that their sum is 180? Explain the double answer.
30. In an AP, if the common difference (d) = -4, and the seventh term (a_7) is 4, then find the first term.
31. The sum of four consecutive numbers in an AP is 32 and the ratio of the product of the first and the last term to the product of two middle terms is 7 : 15. Find the numbers.
32. What is the common difference of an A.P. in which $a_{21} - a_7 = 84$?
33. Which term of the progression 20, $19 \frac{1}{4}$, $18 \frac{1}{2}$, $17 \frac{3}{4}, \dots$ is the first negative term?
34. If the ratio of the sum of the first n terms of two APs is $(7n + 1) : (4n + 27)$, then find the ratio of their 9th terms.

- 35.** The 4th term of an AP is zero. Prove that the 25th term of the AP is three times its 11th term.
- 36.** A foot of a 10 m long ladder leaning against a vertical wall is 6 m away from the base of the wall. Find the height of the point on the wall where the top of the ladder reaches.
- 37.** An aeroplane leaves an airport and flies due north at a speed of 1000 km per hour. At the same time, another aeroplane leaves the same airport and flies due west at a speed of 1200 km per hour. How far apart will be the two planes after 1 1/2 hours?
- 38.** Diagonals AC and BD of a trapezium ABCD with $AB \parallel DC$ intersect each other at the point O. Using a similarity criterion for two triangles, show that $OA/OC = OB/OD$
- 39. Assertion :** Let the positive numbers a, b, c be in A.P., then $1/bc$, $1/ac$, $1/ab$ are also in A.P.
Reason : If each term of an A.P. is divided by abc, then the resulting sequence is also in A.P.
- 40. Assertion :** If S_n is the sum of the first n terms of an A.P., then its nth term is given by $a_n = S_n - S_{n-1}$.
Reason : The 10th term of the A.P. 5, 8, 11, 14, ... is 35.
- 41. Assertion:** If one root of the quadratic equation $6x^2 - x - k = 0$ is $2/3$, then the value of k is 2.
Reason: The quadratic equation $ax^2 + bx + c = 0$, $a \neq 0$ has almost two roots.
- 42. Assertion:** The roots of the quadratic equation $x^2 + 2x + 2 = 0$ are imaginary
Reason: If discriminant $D = b^2 - 4ac < 0$ then the roots of quadratic equation $ax^2 + bx + c = 0$ are imaginary.
- 43. Assertion:** For any two positive integers p and q, $HCF(p, q) \times LCM(p, q) = p \times q$
Reason: If the HCF of two numbers is 5 and their product is 150, then their LCM is 40.
- 44. Assertion:** The linear equations $x - 2y - 3 = 0$ and $3x + 4y - 20 = 0$ have exactly one solution
Reason: The linear equation $2x + 3y - 9 = 0$ and $4x + 6y - 18 = 0$ have a unique solution.
- 45. Assertion:** The graphical representation of the equations $x + 2y = 3$ and $2x + 4y + 7 = 0$ gives a pair of coincident lines.
Reason: The graph of linear equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ gives a pair of intersecting lines if $a_1/a_2 \neq b_1/b_2$
- 46. Assertion (A):** If $\triangle ABC$ and $\triangle PQR$ are congruent triangles, then they are also similar triangles.
Reason (R): All congruent triangles are similar but the similar triangles need not be congruent

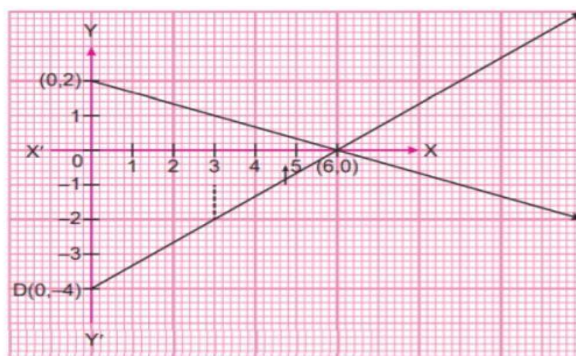
Case Study Questions:

Question 1:

Vijay is trying to find the average height of a tower near his house. He is using the properties of similar triangles. The height of Vijay's house is 20 m when Vijay's house casts a shadow 10 m long on the ground. At the same time, the tower casts a shadow 50m long on the ground and the house of Ajay casts 20 m shadow on the ground.



- (i) What is the height of the tower?
- (a) 20 m
 - (b) 50 m
 - (c) 100 m
 - (d) 200 m
- (ii) What will be the length of the shadow of the tower when Vijay's house casts a shadow of 12m?
- (a) 75 m
 - (b) 50 m
 - (c) 45 m
 - (d) 60 m
- (iii) What is the height of Ajay's house?
- (a) 30 m
 - (b) 40 m
 - (c) 50 m
 - (d) 20 m
- (iv) When the tower casts a shadow of 40m, same time what will be the length of the shadow of Ajay's house?
- (a) 16 m
 - (b) 32 m
 - (c) 20 m (d) 8 m
- (v) When the tower casts a shadow of 40m, same time what will be the length of the shadow of Vijay's house?
- (a) 15 m
 - (b) 32 m
 - (c) 16 m
 - (d) 8 m
- (vi) The scissors which is so common in our daily life use, its blades represent the graph of linear equations.



- (vii) Let the blades of a scissor be represented by the system of linear equations:
 $x + 3y = 6$ and $2x - 3y = 12$
- (viii) The pivot point (point of intersection) of the blades represented by the linear equation $x + 3y = 6$ and $2x - 3y = 12$ of the scissor is
- (2, 3)
 - (6, 0)
 - (3, 2)
 - (2, 6)
- (ix) The points at which linear equations $x + 3y = 6$ and $2x - 3y = 12$ intersect y – axis respectively are
- (0, 2) and (0, 6)
 - (0, 2) and (6, 0)
 - (0, 2) and (0, -4)
 - (2, 0) and (0, -4)
- (x) The number of solution of the system of linear equations $x + 2y - 8 = 0$ and $2x + 4y = 16$ is
- 0
 - 1
 - 2
 - infinitely many
- (xi) If (1, 2) is the solution of linear equations $ax + y = 3$ and $2x + by = 12$, then values of a and b are respectively
- 1, 5
 - 2, 3
 - 1, 5
 - 3, 5
- (xii) If a pair of linear equations in two variables is consistent, then the lines represented by two equations are
- intersecting
 - parallel
 - always coincident
 - intersecting or coincident

Questions 2

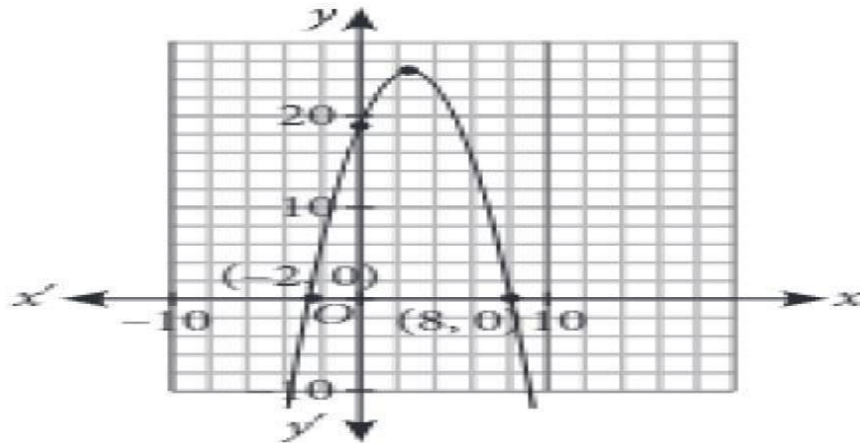
Raj and Ajay are very close friends. Both the families decide to go to Ranikhet by their own cars. Raj's car travels at a speed of x km/h while Ajay's car travels 5 km/h faster than Raj's car. Raj took 4 h more than Ajay to complete the journey of 400 km.



- (i) **What will be the distance covered by Ajay's car in two hours?**
- (a) $2(x + 5)$ km
 - (b) $(x - 5)$ km
 - (c) $2(x + 10)$ km
 - (d) $(2x + 5)$ km
- (ii) **Which of the following quadratic equation describe the speed of Raj's car?**
- (a) $x^2 - 5x - 500 = 0$
 - (b) $x^2 + 4x - 400 = 0$
 - (c) $x^2 + 5x - 500 = 0$
 - (d) $x^2 - 4x + 400 = 0$
- (iii) **What is the speed of Raj's car?**
- (a) 20 km/h
 - (b) 15 km/h
 - (c) 25 km/h
 - (d) 10 km/h
- (iv) **How much time took Ajay to travel 400 km?**
- (a) 20 h
 - (b) 40 h
 - (c) 25 h
 - (d) 16 h
- (v) **How much time took Raj to travel 400 km?**
- (a) 15 h
 - (b) 20 h
 - (c) 18 h
 - (d) 22 h

Questions 3

Priya and her husband Aman who is an architect by profession, visited France. They went to see Mont Blanc Tunnel which is a highway tunnel between France and Italy, under the Mont Blanc Mountain in the Alps, and has a parabolic cross-section. The mathematical representation of the tunnel is shown in the graph.



Based on the above information, answer the following questions.

(i) The zeroes of the polynomial whose graph is given, are

- (a) -2, 8
- (b) -2, -8
- (c) 2, 8
- (d) -2, 0

(ii) What will be the expression of the polynomial given in diagram?

- (a) $x^2 - 6x + 16$
- (b) $-x^2 + 6x + 16$
- (c) $x^2 + 6x + 16$
- (d) $-x^2 - 6x - 16$

(iii) What is the value of the polynomial. represented by the graph, when $x = 4$?

- (a) 22
- (b) 23
- (c) 24
- (d) 25

(iv) If the tunnel is represented by $-x^2 + 3x - 2$. then its zeroes are

- (a) -1, -2
- (b) 1, -2
- (c) -1, 2
- (d) 1, 2

(v) If one of the zero is 4 and sum of zeroes is -3, then representation of tunnel as a polynomial is

- (a) $x^2 - x + 24$
- (b) $-x^2 - 3x + 28$
- (c) $x^2 + x + 28$
- (d) $x^2 - x + 28$

Competitive Corner

Chemistry :

1.The reaction of 'magnesium' with air is

- (a) Exothermic reaction
- (b) Endothermic reaction
- (c) Reversible reaction
- (d) Substitution reaction

2. Magnesium ribbon is rubbed before burning because it has a coating of

- (a) basic magnesium carbonate
- (b) basic magnesium oxide
- (c) basic magnesium sulphide
- (d) basic magnesium chloride

3.What chemicals are used in fireworks?

- (a) Copper chloride
- (b) Calcium chloride
- (c) Barium chloride
- (d) All of above

4.The chemical formula of lead sulphate is

- (a) Pb_2SO_4
- (b) $\text{Pb}(\text{SO}_4)_2$
- (c) PbSO_4
- (d) $\text{Pb}_2(\text{SO}_4)_3$

5. When a magnesium ribbon is burnt in the air, the ash formed is

- (a) Black
- (b) White
- (c) Yellow
- (d) Pink

6. Which information is not conveyed by a balanced chemical equation?

- (a) Physical states of reactants and products
- (b) Symbols and formulae of all the substances involved in a particular reaction
- (c) Number of atoms/molecules of the reactants and products formed
- (d) Whether a particular reaction is actually feasible or not

7. The color of magnesium oxide is

- (a) White
- (b) Blue
- (c) Grey
- (d) Pink

8. Chemically rust is

- (a) hydrated ferrous oxide
- (b) only ferric oxide
- (c) hydrated ferric oxide
- (d) none of these

9. When carbon dioxide is passed through lime water,

- (a) Calcium hydroxide is formed
- (b) A white precipitate of CaO is formed
- (c) Lime water turns milky
- (d) Color of lime water disappears.

10.Both CO_2 and H_2 gases are

- (a) heavier than air
- (b) colorless
- (c) acidic in nature
- (d) soluble in water

11. When crystals of lead nitrate are heated strongly in a dry test tube

- (a) Crystals immediately melt
- (b) A brown residue is left
- (c) White fumes appear in the tube
- (d) A yellow residue is left

12. Which of the following gases can be used for the storage of fresh samples of oil for a long time?

- (a) Carbon dioxide or oxygen (b) Nitrogen or helium
(c) Helium or oxygen (d) Nitrogen or oxygen

13. Consider equations: $\text{Ca}^{+2}(\text{aq}) + 2\text{OH}^{-}(\text{aq}) \rightarrow \text{Ca}(\text{OH})_2 (\text{s})$. The precipitate of calcium hydroxide will be of

- (a) Green color (b) Blue color
(c) Brown color (d) White color

14. In writing chemical equations, the inclusion of state symbols shall be done while

- (a) Correct chemical formulae of reactants and products are written
(b) The equation is being balanced to fulfill the law of conservation of mass
(c) The equation has been balanced
(d) The chemical formulae of products and reactants have been changed to bring about quick balancing

15. The electrolytic decomposition of water gives H_2 and O_2 in the ratio of

- (a) 1: 2 by volume (b) 2: 1 by volume
(c) 8: 1 by mass (d) 1: 2 by mass

16. Consider the equation: $\text{Pb}^{+2} (\text{aq}) + 2\text{OH}^{-} (\text{aq}) \rightarrow \text{Pb}(\text{OH})_2 (\text{s})$, the precipitate of lead (II) hydroxide will be of

- (a) Green color (b) Blue color
(c) Brown color (d) White color

17. Consider the equation: $\text{Cu}^{+2} (\text{aq}) + 2\text{OH}^{-}(\text{aq}) \rightarrow \text{Cu}(\text{OH})_2 (\text{s})$, the precipitate of Copper Hydroxide ($\text{Cu}(\text{OH})_2$) will be of

- (a) Green color (b) Blue color
(c) Brown color (d) White color

18. In the decomposition of lead (II) nitrate to give lead (II) oxide, nitrogen dioxide, and oxygen gas, the coefficient of nitrogen dioxide (in the balanced equation) is

- (a) 1 (b) 2 (c) 3 (d) 4

19. Consider reaction: $\text{Na}(\text{s}) + \text{O}_2(\text{g}) \rightarrow \text{Na}_2\text{O}(\text{s})$. Moles of sodium needed to balance equation would be

- (a) 1 (b) 2 (c) 3 (d) 4

20. Consider the reaction: $\text{S}(\text{s}) + \text{O}_2(\text{g}) \rightarrow \text{SO}_2$. The state of SO_2 in this reaction is

- (a) Liquid (b) Solid (c) Gaseous (d) All Three

Solve assignment 1 and 2 in competitive exam notebook only.

MATHS

1. For some integer m , every even integer is of the form

- (a) m (b) $m + 1$ (c) $2m$ (d) $2m + 1$

2. For some integer q , every odd integer is of the form

- (a) q (b) $q + 1$ (c) $2q$ (d) $2q + 1$

3. $n^2 - 1$ is divisible by 8, if n is

- (a) an integer (b) a natural number
(c) an odd integer (d) an even integer

4. Given that $\text{HCF}(1125, 1664) = 128$, the $\text{LCM}(1125, 1664)$ is

- (a) 14976 (b) 1664 (c) 1152 (d) None of these

5. The largest number which divides 70 and 125, leaving remainders 5 and 8, respectively, is

- (a) 13 (b) 65 (c) 875 (d) 1750

6. If two positive integers a and b are written as $a = x^3 y^2$ and $b = xy^3$; x, y are prime numbers, then $\text{HCF}(a, b)$ is

- (a) xy (b) xy^2 (c) $x^3 y^3$ (d) $x^2 y^2$

7. If two positive integers p and q can be expressed as $p = ab^2$ and $q = a^3 b$; a, b being prime numbers, then $\text{LCM}(p, q)$ is

- (a) ab (b) $a^2 b^2$ (c) $a^3 b^2$ (d) $a^3 b^3$

8. The product of a non-zero rational and an irrational number

- (a) always irrational (b) always rational
(c) rational or irrational (d) one

9. The least number that is divisible by all the numbers from 1 to 10 (both inclusive) is

- (a) 10 (b) 100 (c) 504 (d) 2520

10. The decimal expansion of the rational number $\frac{14587}{1250}$ will terminate after:

- (a) one decimal place (b) two decimal places
(c) three decimal places (d) four decimal places

11. $\sqrt{3}$ is

- (a) a natural number (b) not a real number
(c) a rational number (d) an irrational number

12. The HCF of 52 and 130 is

- (a) 52 (b) 130 (c) 26 (d) 13

13. The HCF of 52 and 135 is

- (a) 52 (b) 130 (c) 26 (d) None

14. The HCF of 500 and 130 is

- (a) 52 (b) 130 (c) 26 (d) None of these

15. If the HCF of two numbers is 1, then the two numbers are called

- (a) composite (b) relatively prime or co-prime
(c) perfect (d) irrational numbers

16. $\sqrt{5} - 3 - 2$ is

- (a) a rational number (b) a natural number
(c) equal to zero (d) an irrational number

17. The number 0.211 2111 21111..... is a

- (a) terminating decimal
(b) non-terminating decimal
(c) non termination and non-repeating decimal
(d) none of these

18. Any one of the numbers a , $a + 2$ and $a + 4$ is a multiple of:

- (a) 2 (b) 3 (c) 5 (d) 7

19. . If p is a prime number and p divides k^2 , then p divides:

- (a) $2k^2$ (b) k (c) $3k$ (d) none of these

20. π is

- (a) a natural number (b) not a real number
(c) a rational number (d) an irrational number

“

**I don't believe in taking the
right decisions. I take the decision
and then make them right.**

- Ratan Tata (Tata Group, Chairperson)

