

SELAQUI INTERNATIONAL SCHOOL
HOLIDAY HOMEWORK
SUMMER VACATION 2019-20
(CLASS IX)

ENGLISH

INSTRUCTIONS

The assignment should be written on project sheets and put in a file labeled properly with headings, done neatly.

1. Do you crave adventure or attention? Why or why not? Write a short paragraph.
2. Read a book of your choice and write a summary on it.
 - a. Make a list of characters.
 - b. List the character you liked the most and why.
Books to choose from:
 - I. *Matilda*
 - II. *The BFG*
 - III. *My Uncle Oswald*
 - IV. *The Witches*
 - V. *The Boy in the Striped Pajamas.*

Read the lesson: Write a summary on each of the lessons and find the answers.

Prose:

- a. The Sound of Music
- b. The Little Girl
- c. A Truly Beautiful Mind

Poetry:

- a. Wind
- b. Rain on the Roof

HINDI

HINDI (हिंदी)

1. एक शीघ्रावकाश कालीन दैनंदिनी की रचना कीजिए जिसमें अपने आस-पास के प्रतिदिन की दो घटनाओं का उल्लेख विविध क्रम में अंकित हो।
2. किसी एक हिंदी प्रतिष्ठित समाचार-पत्र में अपने रुचिकर लेख (लगभग 300 शब्द) को प्रतिदिन पढ़कर उसमें प्रयुक्त, नए अथवा दुर्लभ शब्दों को दैनंदिनी के दूसरे क्रम में स्वच्छ एवं स्पष्ट लेख में अंकित करें।
3. मेलाकुई औद्योगिक क्षेत्र के अंतर्गत प्रदूषण एवं गंदगी की समस्याओं का उल्लेख करते हुए उसके निवारण हेतु नगर अधिशासी अधिकारी को एक पत्र लिखिए।
चित्र-वर्णन एक ऐसी कला है जिसमें मन के भाव प्रकट होते हैं, चित्र को देखकर हमारे मन में जो भाव उठते हैं, उन्हें हम लिखकर प्रकट करते हैं यही 'चित्र-वर्णन' कहलाता है।
4. निम्नांकित चित्र को ध्यानपूर्वक देखकर एवं समझकर "चित्र-वर्णन" कीजिए अर्थात् अंकित चित्र के आधार पर अपने विचारों की अभिव्यक्ति लगभग 100 शब्दों में कीजिए।

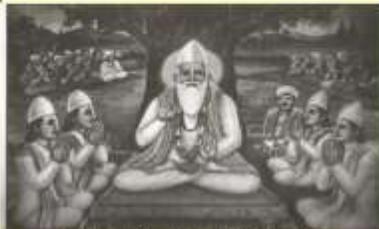


Photo by Anand - igit.com / shutterstock.com

FRENCH

Faites une carte d'identité pour votre père ou votre mère.

Marquez sur la carte du monde au moins 10 pays francophone et écris le nom d'une recette très connue de chaque de ces pays.

Décrivez un monument très connu de votre ville en français sans utiliser le 'google translate'

SCIENCE

PHYSICS

SHEET – 01

1. An object travels 30m in 3s and then another 30m in 2s. What is the average speed of the object?
2. What is the general formula for acceleration?
3. Name the device used to measure the distance travelled by an automobile.
4. Name the S.I. unit of speed.
5. Name the physical quantity that corresponds to the rate of change of velocity.
6. What is the other name of negative acceleration?
7. Name the physical vector quantity whose S.I unit is m/s.
8. Name the physical quantity whose S.I unit is m/s^2 .
9. Name the device used to measure the instantaneous speed of vehicle

SHEET – 02

1. Define acceleration and write its S.I Unit
2. Define velocity and write its S.I. unit.
3. What is difference between distance and displacement?
4. A bus decreases its speed from 80km h^{-1} to 60 km h^{-1} in 5s. Find the acceleration of the bus.
5. A car goes from a town A to another town B with a speed of 30km/h and return back to the town A with a speed of 60 km/h . What is the average speed of the car during the complete journey?
6. What can you say about the motion of a body if its distance-time graph is a straight line parallel to time axis?
7. What is the nature of distance-time graph for non - uniform motion of the body?
8. What can you say about the motion of a body if its velocity time graph is a straight line parallel to time axis?
9. The velocity time graph is a straight line making an angle 30° with the time axis. What is its acceleration?

CHEMISTRY

1. Prepare a **Model demonstrating movement of particles in solids, liquids and gases.**

You need to bring your **model** for the project.

The details of the project can be found in NCERT Science Textbook of Chapter 1 of Class 9.

OR

2. Prepare a **Model of a small-scale water filtration plant.**

You need to bring your **model** for the project.

The details of the project can be found at

<https://science.lovetoknow.com/science-fair-projects/homemade-water-filter-science-project>

<https://sciencing.com/make-water-filter-science-experiment-5507017.html>

<https://www.homesciencetools.com/article/water-filtration-science-project/>

OR

3. You will be making **A home-made spectroscope**

You will watch the following videos:

<https://www.youtube.com/watch?v=1iWdTbXvHx0>

<https://www.youtube.com/watch?v=SA6UKzE7WRw>

Then make a **3 dimensional model** using the details given at

<http://www.euhou.net/index.php/exercises-mainmenu-13/classroom-experiments-and-activities-mainmenu-186/178-a-home-made-spectroscope>

BIOLOGY

Summer assignment, 2019

Class IX

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- 1) Design a mini model on Greenhouse and also describe its functioning and importance.

Helpful links:

- <https://www.wikihow.com/Make-a-Mini-Greenhouse>

OR

- 2) Make a herbarium of atleast 10 medicinal plants from your vicinity. Mention the scientific name, common name and 5 uses of each plant collected.

Helpful links:

- <https://www.rhs.org.uk/science/conservation-biodiversity/conserving-garden-plants/rhs-herbarium/pressing-and-collecting-samples>
- <https://www.rbg.vic.gov.au/science/herbarium-and-resources/national-herbarium-of-victoria/preparing-herbarium-specimens>

OR

- 3) Describe any two biogeochemical cycles in nature (water, oxygen, carbon and nitrogen) with the help of proper diagrams/flowcharts.

Helpful links:

- <https://openoregon.pressbooks.pub/envirobiology/chapter/3-2-biogeochemical-cycles/>

OR

- 4) Make a model/chart of an animal and a plant cell and label various cell organelles present in each type of cell. Illustrate how an animal cell is different from a plant cell.

Helpful links:

- <https://byjus.com/biology/difference-between-plant-cell-and-animal-cell/>
- <https://www.thoughtco.com/animal-cells-vs-plant-cells-373375>

SOCIAL STUDIES

DISASTER MANAGEMENT – PROJECT WORK

As per CBSE guidelines, students of Class IX have to submit a handwritten project on any one of the related topics on Disaster Management. Students are requested to utilize their summer vacation to complete this project which will be followed by viva voce/written assignment.

TOPIC OF THE PROJECT 'BEFORE AND AFTER' ODISHA'S TORN UP BY CYCLONE FANI GUIDELINES FOR SUBMITTING THE PROJECT

1. Use A4 size sheets
2. It should be a hand written project (blue or black pen should be used)
3. You can use newspaper clippings, maps, diagrams and material from the web
4. Each illustration should be supported with a write up/relevance to the topic
5. The cover page should be written in bold letters with the topic, name, class and Admission no.

FOLLOW THE SEQUENCE OF PAGES AS GIVEN BELOW:

- a. Acknowledgement
- b. Index
- b. Define disaster and its types
- c. Causes of Cyclone
- d. Extent of damage to life and property
- e. Who is responsible for the rehabilitation?
- f. Steps taken by the Govt. to combat Cyclonic disaster
- g. Organisations working to help the affected
- h. Lessons learnt
- i. Dos and don'ts for next time to reduce damage from disaster.
- j. Bibliography

***Maps, pictures, graphs, etc.**

6. ***Use hard bound cover pocket file or get your project spiral bound.***

COMPUTER APPLICATION

YOU NEED TO BRING THE MODEL FOR THE PROJECT.

1. To calculate area and perimeter of a rectangle for given height and width.
2. To calculate and print simple interest and compound interest of given principal amount @rate and time (in years)
3. To find out temperature in degree Celsius for given temp in degree F. Vii. To find out sum of digits of given 3 digit number. (e.g. if no is 123 result will be 6)
4. Program should ask name and age of person from user at the time of execution of the program and print following message :
Hello ! You are years old.
5. Program ask 3 numbers, calculate the result of following expression and print all four values on screen.
Expression is :
 $c=a^2 +b^2 +2ab$.
6. Program to read an integer from the keyboard and calculate a^2 , a^3 , a^4 and print numbers and result of calculation on screen.
7. WAP to input 10 numbers and print number of numbers divisible by 5.
8. WAP to input 5 numbers and print square of every number.
9. WAP to input 5 and find sum of all one digit numbers. 5. WAP to input 4 numbers and print biggest, smallest and average of all numbers.

10. Write program for

1.To print four lines of poem in four different lines

2.Find our area and perimeter of circle for given radius.

3.To calculate and print Total marks, percentage of marks obtained in four subjects in following format.

Name :

Class : IX

Sec : C

Roll number : 01

Subject

MM

Marks Obtained

English

100

X

Maths

100

x

Science

100

x

Computer

100

x

Total :

Percentage :

Class Teacher

Co-Ordinator

Principal

MATHEMATICS

CHAPTER 1-NUMBER SYSTEM

- 1) Find which of the variables x , y , z and u represent rational numbers and which irrational numbers:

(i) $x^2 = 5$ (ii) $y^2 = 9$ (iii) $z^2 = .04$ (iv) $u^2 = \frac{17}{4}$

- 2) Find three rational numbers between

(i) -1 and -2 (ii) 0.1 and 0.11

(iii) $\frac{5}{7}$ and $\frac{6}{7}$ (iv) $\frac{1}{4}$ and $\frac{1}{5}$

- 3) Insert a rational number and an irrational number between the following :

(i) 2 and 3 (ii) 0 and 0.1 (iii) $\frac{1}{3}$ and $\frac{1}{2}$

(iv) $\frac{-2}{5}$ and $\frac{1}{2}$ (v) 0.15 and 0.16 (vi) $\sqrt{2}$ and $\sqrt{3}$

(vii) 2.357 and 3.121 (viii) $.0001$ and $.001$ (ix) 3.623623 and 0.484848

(x) 6.375289 and 6.375738

- 4) Represent the following numbers on the number line :

$7, 7.2, \frac{-3}{2}, \frac{-12}{5}$

- 5) Locate $\sqrt{5}$, $\sqrt{10}$ and $\sqrt{17}$ on the number line.

- 6) Represent geometrically the following numbers on the number line :

(i) $\sqrt{4.5}$ (ii) $\sqrt{5.6}$ (iii) $\sqrt{8.1}$ (iv) $\sqrt{2.3}$

- 7) Express the following in the form $\frac{p}{q}$, where p and q are integers and $q \neq 0$:

(i) 0.2 (ii) $0.888\dots$ (iii) $5\bar{2}$ (iv) $0.\overline{001}$

(v) $0.2555\dots$ (vi) $0.1\overline{34}$ (vii) $.00323232\dots$ (viii) $.404040\dots$

- 8) Show that $0.142857142857\dots = \frac{1}{7}$

9) Simplify the following:

(i) $\sqrt{45} - 3\sqrt{20} + 4\sqrt{5}$

(ii) $\frac{\sqrt{24}}{8} + \frac{\sqrt{54}}{9}$

(iii) $\sqrt[4]{12} \times \sqrt[4]{6}$

(iv) $4\sqrt{28} \div 3\sqrt{7} \div \sqrt[3]{7}$

(v) $3\sqrt{3} + 2\sqrt{27} + \frac{7}{\sqrt{3}}$

(vi) $(\sqrt{3} - \sqrt{2})^2$

(vii) $\sqrt[4]{81} - 8\sqrt[3]{216} + 15\sqrt[3]{32} + \sqrt{225}$

(viii) $\frac{3}{\sqrt{8}} + \frac{1}{\sqrt{2}}$

(ix) $\frac{2\sqrt{3}}{3} - \frac{\sqrt{3}}{6}$

10) Rationalise the denominator of the following:

(i) $\frac{2}{3\sqrt{3}}$

(ii) $\frac{\sqrt{40}}{\sqrt{3}}$

(iii) $\frac{3+\sqrt{2}}{4\sqrt{2}}$

(iv) $\frac{16}{\sqrt{41}-5}$

(v) $\frac{2+\sqrt{3}}{2-\sqrt{3}}$

(vi) $\frac{\sqrt{6}}{\sqrt{2}+\sqrt{3}}$

(vii) $\frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$

(viii) $\frac{3\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}$

(ix) $\frac{4\sqrt{3}+5\sqrt{2}}{\sqrt{48}+\sqrt{18}}$

11) Find the values of a and b in each of the following:

(i) $\frac{5+2\sqrt{3}}{7+4\sqrt{3}} = a - 6\sqrt{3}$

(ii) $\frac{3-\sqrt{5}}{3+2\sqrt{5}} = a\sqrt{5} - \frac{19}{11}$

(iii) $\frac{\sqrt{2}+\sqrt{3}}{3\sqrt{2}-2\sqrt{3}} = 2 - b\sqrt{6}$

(iv) $\frac{7+\sqrt{5}}{7-\sqrt{5}} - \frac{7-\sqrt{5}}{7+\sqrt{5}} = a + \frac{7}{11}\sqrt{5}b$

12) If $a = 2 + \sqrt{3}$, then find the value of $a - \frac{1}{a}$.

13) Rationalise the denominator in each of the following and hence evaluate by taking $\sqrt{2} = 1.414$, $\sqrt{3} = 1.732$ and $\sqrt{5} = 2.236$, upto three places of decimal.

(i) $\frac{4}{\sqrt{3}}$ (ii) $\frac{6}{\sqrt{6}}$ (iii) $\frac{\sqrt{10} - \sqrt{5}}{2}$

(iv) $\frac{\sqrt{2}}{2 + \sqrt{2}}$ (v) $\frac{1}{\sqrt{3} + \sqrt{2}}$

14) Simplify:

(i) $(1^3 + 2^3 + 3^3)^{\frac{1}{2}}$

(ii) $\frac{3}{5}^4 \frac{8}{5}^{-12} \frac{32}{5}^6$

(iii) $\frac{1}{27}^{-\frac{2}{3}}$

(iv) $(625)^{\frac{1}{2} - \frac{1}{4}^2}$

(v) $\frac{9^{\frac{1}{3}} \times 27^{-\frac{1}{2}}}{36 \times 3^{-\frac{2}{3}}}$

(vi) $64^{-\frac{1}{3}} 64^{\frac{1}{3}} - 64^{\frac{2}{3}}$

(vii) $\frac{8^{\frac{1}{3}} \times 16^{\frac{1}{3}}}{32^{-\frac{1}{3}}}$

- 15) Let x and y be rational and irrational numbers, respectively. Is $x + y$ necessarily an irrational number? Give an example in support of your answer.
- 16) Let x be rational and y be irrational. Is xy necessarily irrational? Justify your answer by an example.
- 17) State whether the following statements are true or false? Justify your answer.

- (i) $\frac{\sqrt{2}}{3}$ is a rational number.
- (ii) There are infinitely many integers between any two integers.
- (iii) Number of rational numbers between 15 and 18 is finite.
- (iv) There are numbers which cannot be written in the form $\frac{p}{q}$, $q \neq 0$, p, q both are integers.
- (v) The square of an irrational number is always rational.
- (vi) $\frac{\sqrt{12}}{\sqrt{3}}$ is not a rational number as $\sqrt{12}$ and $\sqrt{3}$ are not integers.
- (vii) $\frac{\sqrt{15}}{\sqrt{3}}$ is written in the form $\frac{p}{q}$, $q \neq 0$ and so it is a rational number.

- 18) Classify the following numbers as rational or irrational with justification :

- (i) $\sqrt{196}$ (ii) $3\sqrt{18}$ (iii) $\sqrt{\frac{9}{27}}$ (iv) $\frac{\sqrt{28}}{\sqrt{343}}$
- (v) $-\sqrt{0.4}$ (vi) $\frac{\sqrt{12}}{\sqrt{75}}$ (vii) 0.5918
- (viii) $(1 + \sqrt{5}) - (4 + \sqrt{5})$ (ix) 10.124124... (x) 1.010010001...

- 19) Express $0.6 + 0.\bar{7} + 0.4\bar{7}$ in the form $\frac{p}{q}$, where p and q are integers and $q \neq 0$.

20) Simplify: $\frac{7\sqrt{3}}{\sqrt{10} + \sqrt{3}} - \frac{2\sqrt{5}}{\sqrt{6} + \sqrt{5}} - \frac{3\sqrt{2}}{\sqrt{15} + 3\sqrt{2}}$.

21) If $\sqrt{2} = 1.414$, $\sqrt{3} = 1.732$, then find the value of $\frac{4}{3\sqrt{3} - 2\sqrt{2}} + \frac{3}{3\sqrt{3} + 2\sqrt{2}}$.

22) If $a = \frac{3 + \sqrt{5}}{2}$, then find the value of $a^2 + \frac{1}{a^2}$.

23) If $x = \frac{\sqrt{3} + \sqrt{2}}{\sqrt{3} - \sqrt{2}}$ and $y = \frac{\sqrt{3} - \sqrt{2}}{\sqrt{3} + \sqrt{2}}$, then find the value of $x^2 + y^2$.

24) Simplify: $(256)^{-\left(\frac{1}{4}\right)^2}$

25) Find the value of $\frac{4}{(216)^{-\frac{2}{3}}} + \frac{1}{(256)^{-\frac{3}{4}}} + \frac{2}{(243)^{-\frac{1}{5}}}$

CHAPTER 2- POLYNOMIALS

1. Classify the following polynomials as polynomials in one variable, two variables etc.

(i) $x^2 + x + 1$

(ii) $y^3 - 5y$

(iii) $xy + yz + zx$

(iv) $x^2 - 2xy + y^2 + 1$

2. Determine the degree of each of the following polynomials :

(i) $2x - 1$

(ii) -10

(iii) $x^3 - 9x + 3x^5$

(iv) $y^3(1 - y^4)$

3. For the polynomial

$$\frac{x^3 + 2x + 1}{5} - \frac{7}{2}x^2 - x^6, \text{ write}$$

(i) the degree of the polynomial

(ii) the coefficient of x^3

(iii) the coefficient of x^6

(iv) the constant term

4. Write the coefficient of x^2 in each of the following :

(i) $\frac{\pi}{6}x + x^2 - 1$

(ii) $3x - 5$

(iii) $(x - 1)(3x - 4)$

(iv) $(2x - 5)(2x^2 - 3x + 1)$

5. Classify the following as a constant, linear, quadratic and cubic polynomials :

(i) $2 - x^2 + x^3$ (ii) $3x^3$ (iii) $5t - \sqrt{7}$ (iv) $4 - 5y^2$

(v) 3 (vi) $2 + x$ (vii) $y^3 - y$ (viii) $1 + x + x^2$

(ix) t^2 (x) $\sqrt{2}x - 1$

6. Give an example of a polynomial, which is :

(i) monomial of degree 1

(ii) binomial of degree 20

(iii) trinomial of degree 2

7. Find the value of the polynomial $3x^3 - 4x^2 + 7x - 5$, when $x = 3$ and also when $x = -3$.

8. If $p(x) = x^2 - 4x + 3$, evaluate : $p(2) - p(-1) + p\left(\frac{1}{2}\right)$

9. Find $p(0), p(1), p(-2)$ for the following polynomials :

(i) $p(x) = 10x - 4x^2 - 3$

(ii) $p(y) = (y + 2)(y - 2)$

10. Verify whether the following are **True** or **False** :

(i) -3 is a zero of $x - 3$

(ii) $-\frac{1}{3}$ is a zero of $3x + 1$

(iii) $\frac{-4}{5}$ is a zero of $4 - 5y$

(iv) 0 and 2 are the zeroes of $t^2 - 2t$

(v) -3 is a zero of $y^2 + y - 6$

11. Find the zeroes of the polynomial in each of the following :

(i) $p(x) = x - 4$

(ii) $g(x) = 3 - 6x$

(iii) $q(x) = 2x - 7$

(iv) $h(y) = 2y$

12. Find the zeroes of the polynomial :

$$p(x) = (x - 2)^2 - (x + 2)^2$$

13. By actual division, find the quotient and the remainder when the first polynomial is divided by the second polynomial : $x^4 + 1$; $x - 1$

14. By Remainder Theorem find the remainder, when $p(x)$ is divided by $g(x)$, where

(i) $p(x) = x^3 - 2x^2 - 4x - 1$, $g(x) = x + 1$

(ii) $p(x) = x^3 - 3x^2 + 4x + 50$, $g(x) = x - 3$

(iii) $p(x) = 4x^3 - 12x^2 + 14x - 3$, $g(x) = 2x - 1$

(iv) $p(x) = x^3 - 6x^2 + 2x - 4$, $g(x) = 1 - \frac{3}{2}x$

15. Check whether $p(x)$ is a multiple of $g(x)$ or not :

(i) $p(x) = x^3 - 5x^2 + 4x - 3$, $g(x) = x - 2$

(ii) $p(x) = 2x^3 - 11x^2 - 4x + 5$, $g(x) = 2x + 1$

16. Show that :

(i) $x + 3$ is a factor of $69 + 11x - x^2 + x^3$.

(ii) $2x - 3$ is a factor of $x + 2x^3 - 9x^2 + 12$.

17. Determine which of the following polynomials has $x - 2$ a factor :

(i) $3x^2 + 6x - 24$

(ii) $4x^2 + x - 2$

18. Show that $p - 1$ is a factor of $p^{20} - 1$ and also of $p^{11} - 1$.

19. For what value of m is $x^3 - 2mx^2 + 16$ divisible by $x + 2$?

20. If $x + 2a$ is a factor of $x^5 - 4a^2x^3 + 2x + 2a + 3$, find a .