D.S.B. INTERNATIONAL PUBLIC SCHOOL
RISHIKESH (UTTARAKHAND)
CLASS - IX
Holiday HW- (2024-25)

Dear Students,
The Summer vacation begins soon and school will re-open on 8th July 2024.Holiday Home Work can be downloaded from the School website:
www.dsbschool.net

- **The holiday homework project has been designed keeping in mind learning objectives, purposeful activity and development of our young learners.**
- **Here are the ways by which you can make your holidays fun and learning at the same time:**
- **Speak in English as much as possible. *Help parents in small household chores like dusting, cleaning and watering the plants.**
- ***Read any one good story and motivational book and write its review in one page.**
- **All work presented should be done by the student himself/herself.**
- **Do all the Assignment in a neat and legible handwriting in the Homework notebook.**

Hindi

कला समेकित परियोजना कार्य

विराम चिन्हों का विश्लेषण करते हुए कला समेकित के माध्यम से रचनात्मक परियोजना कार्य बनाएं।

परियोजना कार्यक्रम

1.मुख्य पृष्ठ

2. आभार

3. विराम चिन्हों का अर्थ व प्रकारों का विश्लेषण

4. भाषा और साहित्य में विराम चिन्हों का महत्व

5. भाषा की स्पष्टता व गुणवत्ता पर प्रभाव

Science

1.Chemistry:

Make 3-D model of three states of matter(Solid, Liquid and Gas).

2.Physics:

Plan to go to a place by vehicle.Take readings of Odometer and speedometer after every 5 min, till you reach your destination. Record these observations in tabular form, plot graph between distance- time and speed - time.

State whether the motion is uniform or Non uniform.

*Instruction: This activity needs to be performed with parents driving the vehicle.

3.Biology:

Complete your lab manual work in Practical Notebook.

Maths

1. Prepare a power point presentation on Euclid's axioms and postulates and some basic definitions.(max 5 to 7 slides).
   Submit hardcopy during submission.
2. Learn tables 11 to 20 and squares till 20.

Do the following sums chapter wise in a separate notebook.

CH-1 1 NUMBER SYSTEMS

1. Simplify : $\sqrt{45} - 3\sqrt{20} + 4\sqrt{5}$
2. Find the value of'

$$\frac{(0.6)^0-(0.1)^{-1}}{\left(\frac{3}{8}\right)^{-1}\left(\frac{3}{2}\right)^3+\left(-\frac{1}{3}\right)^{-1}}$$

3. Find the value of $\sqrt{(3)^{-2}}$.
4. Simplify: $(\sqrt{5}+\sqrt{2})^2$.
5. Identify a rational number among the following numbers :

   $2+\sqrt{2}$, $2\sqrt{2}$, 0 and π
6. Find the value of

$$\frac{4}{(216)^{\frac{-2}{3}}}-\frac{1}{(256)^{\frac{-3}{4}}}$$

7. Evaluate : $(\sqrt{5}+\sqrt{2})^2+(\sqrt{8}-\sqrt{5})^2$
8. Let ‘a’ be a non-zero rational number and ‘b’ be an irrational number. Is ‘ab’ necessarily an irrational ? Justify your answer with example.
9. Represent $\sqrt{3}, \sqrt{10}, \sqrt{17}, \wedge \sqrt{37}$ on the number line.
10. Represent $\sqrt{8.2}$, $\sqrt{9.7}$ on the number line.
11. Express 1.32222….. + 0.353535….. as a fraction in the simplest form.
12. If $x = 9 + 4\sqrt{5}$, find the value of $\sqrt{x} - 1/\sqrt{x}$
13. Find ‘x’, if $2^{x-7} \times 5^{x-4} = 1250$.
14. Evaluate:

$$(27)^{-\frac{1}{3}}.(27)^{-\frac{1}{3}}\left[27^{\frac{1}{3}}-27^{\frac{2}{3}}\right].$$

15. Simplify:

$$\frac{3\sqrt{2}}{\sqrt{6}-\sqrt{3}}-\frac{4\sqrt{3}}{\sqrt{6}-\sqrt{2}}+\frac{2\sqrt{3}}{\sqrt{6}+2}.$$

16. Prove that:

$$\frac{1}{1+\sqrt{2}}+\frac{1}{\sqrt{2}+\sqrt{3}}+\frac{1}{\sqrt{3}+\sqrt{4}}+\ldots+\frac{1}{\sqrt{8}+3}=2.$$

17. If $x^a = y$, $y^b = z$ and $z^c = x$, then prove that $abc = 1$.

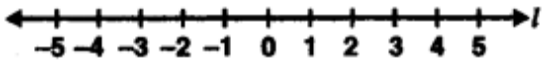
18. Prove that:

$$\frac{x^{-1}}{x^{-1}+y^{-1}}+\frac{x^{-1}}{x^{-1}-y^{-1}}=\frac{2y^2}{y^2-x^2}.$$

19. Show that:

$$\frac{x^{p(q-r)}}{x^{q(p-r)}}\div\left(\frac{x^q}{x^p}\right)^r=1.$$

20. Sudhir and Ashok participated in a long jump competition along a straight line marked as a number line. Both start the jumps one by one but in opposite directions. From 'O' Ashok jumps one unit towards the positive side while Sudhir jumps double in units as Ashok jumps, along negative side. After jumping 4 jumps each, at which point Ashok and Sudhir reached. What is the distance between their final positions ? Ashok argue that he is the winner since Sudhir is at negative side. Who do you think is winner and why? What is th



e value of the competition ?

CH- 2 POLYNOMIALS

1. Define the suggested degree of each polynomial that is listed below.

(i) 5×3 + 4×2 + 7x (ii) 4 – y2 (iii) 5t – √7 (iv) 3

2. Verify whether 2 and 0 are zeroes of the polynomial $x^2 – 2x$.

3. Factorise .

$27x^3 - 63x^2 + 49x – 343/27$

4. Using suitable identity evaluate the following:
   (i) 98^3 (ii) 188 × 212

If $(x - 2a)$ is a factor of $2x^4 - 4ax^3 + 7x^2 - 13ax - 18$, find the value of a.

5. Factorize the given expression:
   $9x^2 + 49y^2 + 25z^2 - 42xy - 30xz + 70yz$

6. If $t + \frac{1}{t} = 8$, then find the value of $t^3 + \frac{1}{t^3}$.

7. Factorise:

   A) $2y^3 - 4y^2 - 2y + 4$
   B) $2x^2 + 7x + 3$

   C) $x^3 + 13x^2 + 32x + 20$

8. If $x = -2$ is a root of the polynomial $P(x) = -2x^4 - 7x^3 - 3x^2 - tx - 10$, then find the value of t.

9. If $a + b + c = 9$ and $ab + bc + ca = 23$, then find value of $a^2 + b^2 + c^2$

10. If $a + b = 3$ and $ab = 2$, then find $a^3 + b^3$

11. Find the value of $249^2 - 248^2$

12. If the sum of two numbers is 12 and the sum of their cubes is 468, find the product of these numbers using algebraic identities.

13. Use a suitable identity to get each of the following products.
   (a) (p - 11) (p + 11)
   (b) (2y + 5) (2y - 5)
   (c) (12a - 9) (12a +9)
   (d) (2a-1/2)(2a-1/2)
   (e) (1.1m - 0.4) (1.1m + 0.4)
   (f) $(a^2 + b^2)(a^2 - b^2)$
   (g) (6x - 7) (6x + 7)
   (h) (- a/2 + c/2) (- a/2 + c/2)
   (l) $(y - 3z)^3$
   (j) $(6x + 5y)^3$

Wishing all of you a relaxing, joyful holidays filled with memorable time with your family.

Thanks.

Regards
Class teacher