

SUMMER VACATION HOMEWORK (2021-22)

Std. IX (A+B+C+D)

Sub-Maths

45. If $x = (2 + \sqrt{3})$, find the value of $\left(x^2 + \frac{1}{x^2}\right)^2$.
46. If $\frac{(\sqrt{3}-1)}{(\sqrt{3}+1)} = (a-b\sqrt{3})$, find the values of a and b .
47. If $\frac{(4+\sqrt{5})}{(4-\sqrt{5})} = (a+b\sqrt{5})$, find the values of a and b .
48. If $\frac{(\sqrt{5}-1)}{(\sqrt{5}+1)} + \frac{(\sqrt{5}+1)}{(\sqrt{5}-1)} = (a+b\sqrt{5})$, find the values of a and b .
49. If $\frac{(\sqrt{2}+\sqrt{3})}{(3\sqrt{2}-2\sqrt{3})} = (a+b\sqrt{6})$, find the values of a and b .

Long-Answer Questions (4 marks)

50. If $x = \frac{(\sqrt{3}+\sqrt{2})}{(\sqrt{3}-\sqrt{2})}$ and $y = \frac{(\sqrt{3}-\sqrt{2})}{(\sqrt{3}+\sqrt{2})}$, find $(x^2 + y^2)$.

51. If $x = \frac{1}{(2-\sqrt{3})}$, show that the value of $(x^3 - 2x^2 - 7x + 5)$ is 3.

52. If $x = (3 + \sqrt{8})$, show that $\left(x^2 + \frac{1}{x^2}\right) = 34$.

53. If $x = (2 + \sqrt{3})$, show that $\left(x^3 + \frac{1}{x^3}\right) = 52$.

54. If $x = (3 - 2\sqrt{2})$, show that $\left(\sqrt{x} - \frac{1}{\sqrt{x}}\right) = \pm 2$.

55. If $x = (5 + 2\sqrt{6})$, show that $\left(\sqrt{x} + \frac{1}{\sqrt{x}}\right) = \pm 2\sqrt{3}$.

1. Let $p(x) = 3x^3 + 4x^2 - 5x + 8$. Find $p(-2)$.
2. Find the remainder when $p(x) = 4x^3 + 8x^2 - 17x + 10$ is divided by $(2x - 1)$.
3. If $(x - 2)$ is a factor of $2x^3 - 7x^2 + 11x + 5a$, find the value of a .
4. For what value of m , $p(x) = (x^3 - 2mx^2 + 16)$ is divisible by $(x + 2)$?
5. If $(a + b + c) = 8$ and $(ab + bc + ca) = 19$, find $(a^2 + b^2 + c^2)$.
6. Expand: $(3a + 4b + 5c)^2$.
7. Expand: $(3x + 2)^3$.
8. Evaluate: $\{(28)^3 + (-15)^3 + (-13)^3\}$.

16. If $(x + 1)$ and $(x - 1)$ are factors of $p(x) = ax^3 + x^2 - 2x + b$, find the values of a and b .
17. If $(x + 2)$ is a factor of $p(x) = ax^3 + bx^2 + x - 6$ and $p(x)$ when divided by $(x - 2)$ leaves a remainder 4, prove that $a = 0$ and $b = 2$.
18. The expanded form of $(3x - 5)^3$ is
 - (a) $27x^3 + 135x^2 + 225x - 125$
 - (b) $27x^3 + 135x^2 - 225x - 125$
 - (c) $27x^3 - 135x^2 + 225x - 125$
 - (d) none of these
19. If $a + b + c = 5$ and $ab + bc + ca = 10$, prove that $a^3 + b^3 + c^3 - 3abc = -25$.
20. If $p(x) = 2x^3 + ax^2 + 3x - 5$ and $q(x) = x^3 + x^2 - 4x + a$ leave the same remainder when divided by $(x - 2)$, show that $a = \frac{-13}{3}$.

Define the following terms:

- | | | |
|------------------------|---------------|--------------------------|
| (i) Line segment | (ii) Ray | (iii) Intersecting lines |
| (iv) Parallel lines | (v) Half-line | (vi) Concurrent lines |
| (vii) Collinear points | (viii) Plane | |

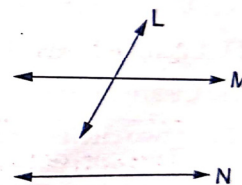
33. A point C lies between two points A and B such that $AC = CB$. Prove that $AC = \frac{1}{2}AB$.

34. Prove that every line segment has a unique mid-point.

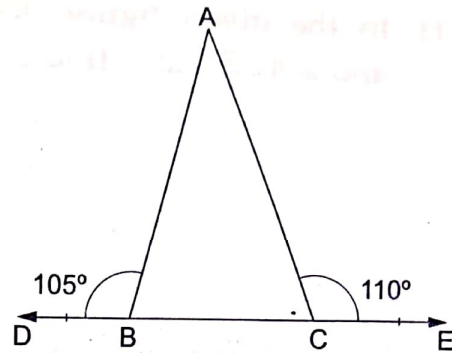
35. In the given figure, $AC = BD$.
Prove that $AB = CD$.



36. L , M , N are three lines in the same plane such that L intersects M and $M \parallel N$. Show that L intersects N also.



3. The side BC of $\triangle ABC$ has been increased on both sides as shown. If $\angle ABD = 105^\circ$ and $\angle ACE = 110^\circ$, then find $\angle A$.



4. Prove that the bisectors of two adjacent supplementary angles include a right angle.
5. If one angle of a triangle is equal to the sum of the two other angles, show that the triangle is right-angled.

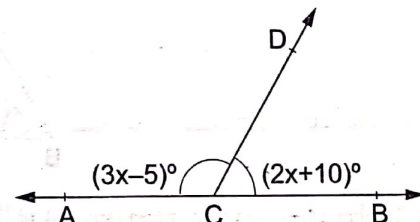
6. In the given figure, ACB is a straight line and CD is a line segment such that $\angle ACD = (3x - 5)^\circ$ and $\angle BCD = (2x + 10)^\circ$. Then, $x = ?$

(a) 25

(b) 30

(c) 35

(d) 40



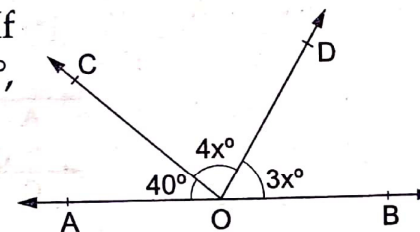
7. In the given figure, AOB is a straight line. If $\angle AOC = 40^\circ$, $\angle COD = 4x^\circ$ and $\angle BOD = 3x^\circ$, then $x = ?$

(a) 20

(b) 25

(c) 30

(d) 35



8. The supplement of an angle is six times its complement. The measure of this angle is

(a) 36°

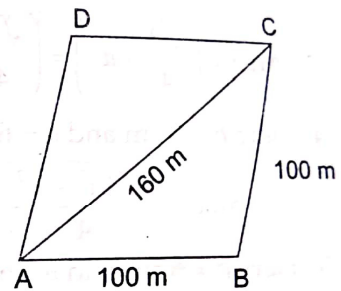
(b) 54°

(c) 60°

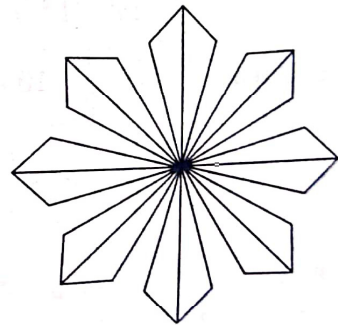
(d) 72°

7. If $2y = 3 - 5x$, find the value of y when $x = -1$.
8. On which axis does the point $A(0, -4)$ lie?
9. In which quadrant does the point $B(-3, -5)$ lie?
10. What is the perpendicular distance of the point $P(-2, -3)$ from the y -axis?
11. At what point do the coordinate axes meet?

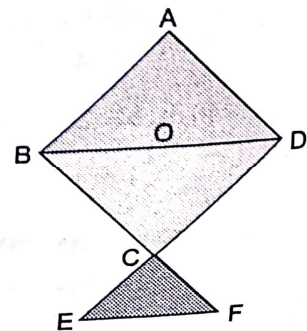
31. A piece of land is in the shape of a rhombus $ABCD$ in which each side measures 100 m and diagonal AC is 160 m long. Find the area of the rhombus.



32. A floral design on a floor is made up of 16 triangular tiles, each having sides 9 cm, 28 cm and 35 cm. Find the cost of polishing the tiles at the rate of Rs 2.50 per cm^2 . [Take $\sqrt{6} = 2.45$]



33. A kite in the shape of a square with each diagonal 32 cm and having a tail in the shape of an isosceles triangle of base 8 cm and each side 6 cm, is made of three different shades as shown in the figure. How much paper of each shade has been used in it? [Given: $\sqrt{5} = 2.24$]



Sub: Hindi

- * 20 उपसर्ग का प्रयोग कर नए शब्द बनायें।
- * 20 प्रत्यय का प्रयोग कर नए शब्द बनायें।
- * 10 विधान वाचक शब्द को निषेध वाचक में बदलें।
- * पाछा औपचारिक और पाछा अनौपचारिक पत्र लिखें।
- * जन्म दिवस की बधाई देते हुए दो मित्रों के बीच का सवाद लिखें।
- * 'पर्यावरण' और 'स्वच्छ भारत अभियान' पर 80-100 शब्द में अनुच्छेद लिखें।

Subject – English

Complete your holidays homework in your homework notebook and present it properly in neat handwriting.

Creative Work

Prepare a handbook on the life of Ustad Bismillah Khan which includes about his childhood, family life, education, achievement, contributions , awards etc. Paste pictures to make it more attractive.

Writing Task

1. Do the following Q/ A in your homework notebook :

- a. What impression of the man, who picked up the little boy, comes to your mind? Is it safe to accompany strangers?
- b. Describe the emotional turmoil experienced by the little boy.
- c. Why did grandfather get annoyed with the ticket collector? How did he get back at him?
- d. What does the poet imply when he says, 'the wind blows out weak fires and make strong fire roar and flourish'?
- e. One should be wise and mature while taking decisions in life. Answer with reference to the poem 'The road not taken'.

2. The second surge of COVID 19 pandemic has not only taken away the elements of fun and frolic with your friends at the school but also has made your life a stagnant pool of water. Make a diary entry in about 100-120 words expressing your feelings.

3. Write a story in about 150-200 words, ending : He touched his Guru's feet and asked for an apology. Give a suitable title to your story.

Learning Task

- Read all the literature units covered in online classes. Learn questions and answers based on these units.

Sub: Science

PHYSICS

Solve NCERT Question of chapter – 1

Chemistry

Prepare questions and answers of Matter in our surrounding and Is Matter around us pure.

Biology

NCERT question ans of Fundamental Unit of Life and Plant tissue. 2. Project work on Plant cell.

Sub: S.St.

History

Topic :- French revolution

Write 10 long ques/ans, 15 short ques/ans

and all objective type(one word) ques/ans.

Geography

1. Why do we need a standard Meridian for India?
2. What is the Prime Meridian? what is the other name for it and why?
3. India occupies an important strategic position in South Asia. Discuss.
4. Why has 82 degree 30 minutes East longitude been selected as the Standard Meridian of India?
5. How was the opening of Suez Canal important to India?
6. Before 1947, there were two types of states in India. Name them and give a brief account of them.
7. The sun rises two hours earlier in Arunachal Pradesh as compared to Gujarat in the West but the watches show the same time. How does this happen?
8. The Central location of India at the head of the Indian Ocean is considered of great significance. Why?
9. What is the latitudinal and longitudinal extent of India?
10. What is the length and breadth of India?

Political Science

1. Distinguish between the Democratic government and Non-democratic government?
2. How does democracy improve the quality of decision making?
3. Give arguments against democracy.
4. Mention three instances which are exceptions of the principle of 'one person, one vote and one value'.
5. What are the minimal features of democracy? Mention.
6. What was the 'Legal Framework Order' passed by Pervez Musharraf in August 2002?
7. How can you say that Mexico till 2000 was not a democratic country?
8. How can you say that media is not independent in Zimbabwe?
9. "Democracy enhances the dignity of citizens".Explain.
10. "Democracy provides a method to deal with differences and conflicts" Elaborate this statement.

Sub- I.T.

Write & learn questions & answers of chapter 1, 2 & 7