



**ARMY PUBLIC SCHOOL RATNUCHAK**

**SESSION: 2016-17**

**WRITTEN ASSIGNMENT**

**CLASS: IX**

**SUBJECT: MATHEMATICS**

Q.1 Simplify  $3\sqrt{2} + 5\sqrt{3} - \sqrt{243} + \sqrt{32}$ .

Q.2 Express in the form of  $\frac{p}{q}$  ;  $32.\overline{732}$

Q.3 Express  $2.\overline{43}$  in the form of  $\frac{p}{q}$  where p and q are integers and  $q \neq 0$ .

Q.4 Simplify the following:

$$\frac{3}{5 - \sqrt{3}} + \frac{2}{5 + \sqrt{3}}$$

Q.5 Find the value of  $x + \frac{1}{x}$  given  $x = 2 + \sqrt{3}$

Q.6 Factorize  $\sqrt{3}y^2 + 11y + 6\sqrt{3}$

Q.7 Find the value of  $x^2 + 9y^2$  if  $x + 3y = 7$  and  $xy = -2$ .

Q.8 If  $x - \frac{1}{x} = 17$ , find the value of  $x^3 - \frac{1}{x^3}$

Q.9 Factorize:  $4a(x - 3y) - 2b(3y - x)$ .

Q.10 For what value of "a",  $(x - 2)$  is a factor of  $2x^3 - 6x^2 + 5x + a$ ?

Q.11 Simplify:

$$\frac{\sqrt{5} + \sqrt{3}}{\sqrt{180} + \sqrt{48} - \sqrt{45} - \sqrt{27}}$$

Q.12 If both  $a$  and  $b$  are real numbers, then find the value of  $a$  and  $b$  in the following equality:

$$\frac{\sqrt{2} + \sqrt{3}}{3\sqrt{2} - 2\sqrt{3}} = a - b\sqrt{6}$$

Q.13 If  $x = 5 + 2\sqrt{6}$ , find the value of  $x + \frac{1}{x}$ .

Q.14 Factorize  $x^4 - 81$ .

Q.15 What should be added to  $16x^2 - 56x$  to make it a perfect square?

Q.16 Insert four rational numbers between  $\frac{1}{4}$  and  $\frac{1}{3}$ .

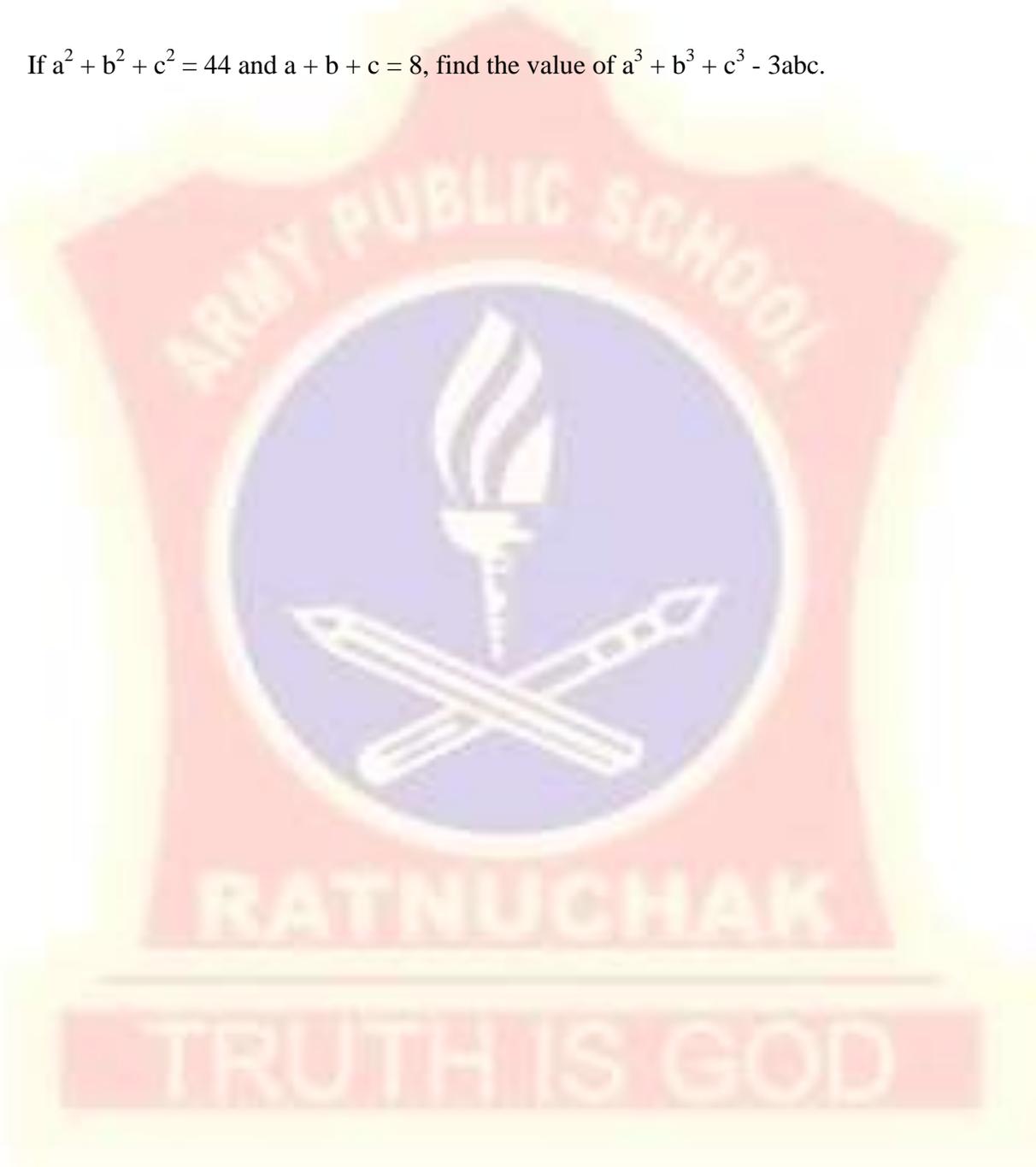
Q.17 Simplify:

$$\frac{(a^2 - b^2)^3 + (b^2 - c^2)^3 + (c^2 - a^2)^3}{(a-b)^3 + (b-c)^3 + (c-a)^3}$$

Q.18 Factorize:  $3(2a - b)^2 - 5(2a - b) - 8$ .

Q.19 If  $a = \frac{3 + \sqrt{5}}{3 - \sqrt{5}}$  and  $b = \frac{3 - \sqrt{5}}{3 + \sqrt{5}}$ , then find the value of  $a^2 + b^2 - 5ab$ .

Q.20 If  $a^2 + b^2 + c^2 = 44$  and  $a + b + c = 8$ , find the value of  $a^3 + b^3 + c^3 - 3abc$ .



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## WRITTEN ASSIGNMENT

**CLASS: IX**

**SUBJECT: SCIENCE**

- Q1 Under what conditions, the average speed is equal to the magnitude of the average velocity?
- Q2 State which of the following situations are possible and give an example of each of the following:
- A body moving with constant acceleration but with zero velocity.
  - A body moving horizontally with acceleration in vertical direction.
  - A body moving with a constant speed in an accelerated motion.
- Q3 A body moves around the sun with constant speed in circular path, is the motion of the body uniform or accelerated?
- Q4 Cars moving along a straight line at a speed of 54 km/hr stop in 5 sec after the brakes are applied.
- find the acceleration, assuming it to be constant.
  - plot the graph of speed versus time.
  - using the graph, find the distance covered by the car after the brakes are applied?
- Q5 What are the advantages of multicellularity?
- Q6 What are the factors which restrict the size of the cell?
- Q7 After rains when rain drops dry away easily- on a cloudy day or on a sunny day? State reason.
- Q8 Both evaporation and boiling involves the change of state from liquid to gas but still they are different from each other. Justify.
- Q9 Will the temperature has any effect on the process of the osmosis? What are the conditions for osmosis?

10. The velocity of a body in motion is recorded every second as shown-

time (S)	0	1	2	3	4	5	6	7	8	9	10
velocity (m/s)	62	54	48	42	36	30	24	18	12	6	0

calculate the -

(a) Acceleration (b) distance travelled

- Q11 What happen when we apply pressure to the particles of matter?
- Q12 A body is dropped from a height of 320m. The acceleration due to the gravity is  $10\text{m/s}^2$ ?
- How long does it take to reach the ground?
  - What is the velocity with which it will strike the ground
- Q13 Give an experiment to show that ammonium chloride undergoes sublimation.
- Q14 A boy throws a stone upward with a velocity of 60m/s.
- How long will it take to reach the maximum height ( $g = -10\text{m/s}^2$ )?
  - What is the maximum height reached by the ball?
  - How long will it take to reach the ground?
- Q15 What is plasmolysis? What happens to a plasmolysed cell when it is placed in water?
- Q16 Why does the temperature of a substance remain constant during melting and boiling even when heat is being supplied to it continuously?
- Q17 What role does the nucleus play in cellular division or reproduction?
- Q18 What happens when the temperature of the solids increase?
- Q19 If you are provided with some vegetables to cook, we generally add salt to the vegetables during cooking process. After adding salt, vegetables releases water. What mechanism is responsible for this?
- Q20 What happen when we apply pressure to the particles of matter?

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**SESSION: 2016-17**

**WRITTEN ASSIGNMENT**

**CLASS: IX**

**SUBJECT: SOCIAL SCIENCE**

- Q1. What was the effect of the war?
- Q2. How did the First World War left a deep imprint on the European soldiers?
- Q3. Who were known as ‘November Criminals?’
- Q4. What is hyperinflation?
- Q5. What was Dawes plan?
- Q6. Describe the impact of the great economic depression 1929-32 on various sections in Germany?
- Q7. Describe the early life of Hitler prior to his assuming power?
- Q8. What were the promises made by Adolf Hitler in Germany?
- Q9. How did Hitler destroy the democracy in Germany?
- Q10. How did Hitler Reconstructed Germany?
- Q11. Define the theory of Plate tectonic?
- Q12. Define Indian Mainland?
- Q13. How was the great plains of India formed?
- Q14. Name the three parallel ranges of Himalayas explain important features for each of them?
- Q15. Give the divisions of Himalayas from west to east?
- Q16. Highlight the features of PURVANCHAL hills?
- Q17. Describe any five features of the northern plains of India?
- Q18. Why is northern plains densely populated?
- Q19. Describe the geographical conditions of the peninsular plateau?
- Q20. Distinguish between the Western Ghats and Eastern Ghats.