



# ARMY PUBLIC SCHOOL RATNUCHAK

SESSION: 2018-19

## WORKSHEET

CLASS IX

MATHEMATICS

Q.1 Simplify  $5\sqrt{3} + 3\sqrt{2} - \sqrt{27} + \sqrt{8}$ .

Q.2 Plot the following points on the rectangular co-ordinate system.

(i)  $(-5, 2)$ ,  $(-4, -2)$ ,  $(6, 2)$ ,  $(2, 5)$  on the co-ordinate system

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

Q.4 Simplify  $(7 + 2\sqrt{5}) / (7 - 2\sqrt{5})$  with a rational denominator.

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

Q.6 Find the value of  $a^3 + b^3 + 12ab - 64$  when  $a + b = 4$

Q.7 If  $x - \frac{1}{x} = 17$ , find the value of  $x^3 - \frac{1}{x^3}$ .

Q.8 Find the value of k, if  $x + 3$  is a factor of  $3x^2 + kx + 6$ .

Q.9 If both  $a$  and  $b$  are rational number, find the values of  $a$  and  $b$  in each of the following equalities:

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

Q.10 If both  $a$  and  $b$  are rational number, find the values of  $a$  and  $b$  in each of the following equalities:

$$\frac{3 - \sqrt{5}}{3 + 2\sqrt{5}} = a\sqrt{5} - b$$

Q.11 If  $x = 3 - 2\sqrt{2}$ , find  $x^2 + \frac{1}{x^2}$

Q.12 If  $\sqrt{3} = 1.732$ , then find the value of  $\frac{(2 - \sqrt{3})}{\sqrt{3}}$  correct upto 3 places of decimal.

Q.13 The velocity of a car at different time intervals is given in the following table:

|                 |    |    |    |    |    |
|-----------------|----|----|----|----|----|
| Time (minutes)  | 2  | 4  | 6  | 8  | 10 |
| Velocity (km/h) | 30 | 40 | 40 | 20 | 10 |

Taking the time on the x-axis and the velocity on the y-axis, plot the points on the graph and join them.

Q.14 Show that  $(x + 4)$ ,  $(x - 3)$  and  $(x - 7)$  are the factors of  $x^3 - 6x^2 - 19x + 84$ .

Q.15. Write down the co-ordinates of each of points P, Q, R and S as shown in the following figure

