S.D.PUBLIC SCHOOL,BU- BLOCK, PITAMPURA, DELHI
HOLIDAYS' HOMEWORK 2025-26
SUBJECT- MATHEMATICS
CLASS – IX

Instructions: 1) The assignment has to be done on A4 sheets.
2) Submit the assignment in a stick file.

Assignment

1) Locate following irrational numbers on number line.

a) $\sqrt{17}$ **b)** $\sqrt{10}$

2) Express in the form of $\frac{p}{q}$ **, where p and q are integers and q ≠ 0**

a) $0.\overline{568}$ **b)** $1.\overline{28}$ **c)** $2.4\overline{32}$

3) Find the values of 'm' and 'n' in the following

a) $\frac{3+\sqrt{7}}{3-\sqrt{7}}$ **= m +** $\sqrt{7}$ **n** **b)** $\frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}$ **= m +** $\sqrt{15}$ **n**

4) Represent $\sqrt{8.1}$ **on the number line.**

5) Rationalise the denominators of the following :

a) $\frac{1}{4-2\sqrt{3}}$ **b)** $\frac{5}{\sqrt{3}-\sqrt{5}}$

6) Find:

a) $(81)^{\frac{3}{4}}$ **b)** $(\frac{16}{49})^{\frac{1}{2}}$ **c)** $(\frac{8}{27})^{\frac{-1}{3}} \times (\frac{32}{243})^{\frac{-1}{5}}$

7) If x = 3 + $2\sqrt{2}$ **, find the value of** $x^2 + \frac{1}{x^2}$ **.**

8) Which of the following expressions are polynomials? Justify your answer.

a) $x^2 + y^2$ **+ xyz** **b)** $\frac{x+1}{x-2}$ **c)** $x^2 - \frac{1}{x^2}$ **d)** $t^5 - \frac{4\,t^{\frac{3}{2}}}{\sqrt{t}}$ **+ 3**

9) Simplify: $\left[\frac{5^{-1}\times 7^2}{5^2\times 7^{-4}}\right]^{\frac{7}{2}} \times \left[\frac{5^{-2}\times 7^3}{5^3\times 7^{-5}}\right]^{\frac{-5}{2}}$

10) Verify whether the following are the zeroes of polynomial.

a) p(x) = 5x – 1 , x = $\frac{1}{5}$

b) p(y) = $y^3 - y^2$ **– y + 1, y = 2**

c) p(x) = (x + 2)(x - 3), x = -2, 3

11) Find the zeroes of the polynomial : p(x) = $(x-2)^2 - (x+2)^2$**.**

12) If x = $\frac{3}{2}$ is a zero of the polynomial $2x^2$ + kx – 12, then find the value of k.

13) Factorise : a) x^3 + x^2 – 17x + 15

b) x^3 - 10 x^2 – 53x – 42

14) Factorise by splitting the middle term.

a) 6 x^2 + 17x + 5

b) x^2 – 28x + 132

15) If a + b + c = 5 and ab + bc + ca = 10, then prove that $a^3 + b^3 + c^3$ – 3abc = -25

16) Factorise the following:

(i) 4 a^2 + b^2 + 9 c^2 + 4ab + 6bc + 12ca
(ii) 8 x^3 + 27 x^3 + 36 x^2y + 54x y^2
(iii) 27 y^3 - 125 z^3

17) Using suitable identity evaluate:

a) 101×102 **b) 998^3**

18) If $x + y = 12$ and $xy = 27$, find the value of $x^3 + y^3$

19) *If* $\sqrt{m} + \sqrt{n} - \sqrt{p} = 0$, then find the value of $(m + n - p)^2$

20) *If* $p(x) = x^2 - 5x + 7$, evaluate $p(2) - p(-1) + p(\frac{1}{3})$