SATISH CHANDRA MEMORIAL SCHOOL
Class: IXCh: 1 (Number System)
Worksheet-3 (Extra Sums)

1. Rationalise the denominator of $\dfrac{3\sqrt{2}}{\sqrt{8}+\sqrt{5}}$

2. Prove : $9^{\frac{3}{2}} - 3 \times 5^0 - \left(\dfrac{1}{81}\right)^{\frac{-1}{2}} = 15$

3. Find x if $2^{5x} \div 2^x = \sqrt[5]{2^{20}}$

4. Prove that : $\left(\dfrac{3^a}{3^b}\right)^{a+b} \times \left(\dfrac{3^b}{3^c}\right)^{b+c} \times \left(\dfrac{3^c}{3^a}\right)^{a+c} = 1$

5. If a and b are rational numbers and $\dfrac{3+\sqrt{7}}{3-\sqrt{7}} = a + b\sqrt{7}$, find the values of a and b.

6. If $x = 3 + \sqrt{8}$ find the value of $x^2 + \dfrac{1}{x^2}$

7. If $a = 9 + 4\sqrt{5}$ find the value of $\sqrt{a} - \dfrac{1}{\sqrt{a}}$

8. If $x = 1 + \sqrt{2}$ find the value of $\left(x - \dfrac{1}{x}\right)^3$