

**DAV Public School**  
**Pokhariput, Bhubaneswar**  
**Subject – Mathematics, Class VIII**  
**Chapter 3: Exponents and Radicals**  
**Worksheet (Advanced)**

1. Fill in the blanks:
  - a)  $8 \times 8 \times 8 \times 8$  in exponential form with base 4 is \_\_\_\_\_. 1
  - b)  $64 \times 64$  in exponential form with base 4 is \_\_\_\_\_. 1
2. Convert the following radical forms to exponential forms:
  - a)  $\sqrt{101}$  1
  - b)  $\sqrt[7]{\left(\frac{53}{5}\right)^4}$  1
3. Solve:
  - a)  $\sqrt[3]{343^2}$  2
  - b)  $\sqrt[2]{81^3}$  2
4. Find the value:
  - a) 4<sup>th</sup> root of  $36^2$  2
  - b) 9<sup>th</sup> root of  $125^3$  2
5. Evaluate:
  - a)  $\frac{8^{-1} \times 5^3}{2^{-4}}$  2
  - b)  $(5^{-1} \times 2^{-1}) \times 6^{-1}$  2
6. Evaluate:
  - a)  $3 \times 16^{\frac{3}{4}}$  3
  - b)  $2 \times (27)^{\frac{-2}{3}}$  3
  - c)  $2 \times 9^{\frac{3}{2}} \times 9^{\frac{-1}{2}}$  3
7. Find the value of  $[5^2 + (12)^2]^{\frac{1}{2}}$  3
8. Find the value of x if:
  - a)  $2^x + 2^x + 2^x = 192$  3
  - b)  $8^{255} = (32)^x$  3
9. If  $4^x - 4^{x-1} = 24$ , then find the value of x 4
10. Evaluate (i)  $\left\{ \left(\frac{1}{3}\right)^{-1} - \left(\frac{1}{4}\right)^{-1} \right\}^{-1}$  (ii)  $\left(\frac{5}{8}\right)^{-7} \times \left(\frac{8}{5}\right)^{-4}$  4