



## STANDARD 8<sup>TH</sup>: CHAPTER 3

### Indices and Cube Root

#### Q.1. Select all the correct alternatives

- Solve  $\left\{ \left(\frac{1}{3}\right)^{-3} - \left(\frac{1}{2}\right)^{-3} \right\} \div \left(\frac{1}{4}\right)^{-3}$ 
  - $\frac{19}{64}$
  - $\frac{20}{64}$
  - $\frac{64}{19}$
  - $\frac{18}{19}$
- What is the correct ordering of the three numbers,  $10^8$ ,  $5^{12}$ , and  $2^{24}$ 
  - $5^{12} < 2^{24} < 10^8$
  - $2^{24} < 10^8 < 5^{12}$
  - $10^8 < 5^{12} < 2^{24}$
  - $5^{12} < 10^8 < 2^{24}$
- Which of the following numbers is not a perfect square?
  - $1^{2021}$
  - $3^{2018}$
  - $2^{2107}$
  - $4^{2019}$
- What will you get after simplifying  $\frac{2^{n+1}}{2^{n(n-1)}} \div \frac{8^{n+1}}{(2^{n+1})^{n-1}}$ 
  - 4
  - $\frac{1}{4}$
  - 3
  - $\frac{2}{4}$
- Simplify  $\left(\frac{343}{1024 \times 8 \times 4}\right)^{\frac{1}{3}} \times (256)^{\frac{1}{2}}$ 
  - $\frac{2}{5}$
  - $\frac{5}{6}$
  - $\frac{7}{2}$
  - $\frac{9}{4}$

6.  $\left(\left(\frac{9}{7}\right)^{5x-3}\right)^2 = \frac{6561}{2401}$  find the value of x

- a) 2
- b) 3
- c) 4
- d) 1

7. If  $17^x = 4913$ , find the value of  $2^{2x-1}$ .

- a) 49
- b) 35
- c) 32
- d) 46

8. Solve for x  $\left[\left(\sqrt{\frac{16}{25}}\right)^{4x-9}\right]^3 = \frac{64}{125}$

- a) 5/2
- b) 3/2
- c) 6/2
- d) 2/3

9. If  $x = 10^3 \times 0.0099$ ,  $y = 10^{-2} \times 110$ , find the value of  $\sqrt{(x/y)}$

- a) 2
- b) 4
- c) 3
- d) 9

10.  $x^y * y = 1215$  where  $x, y \in N$ ,  $x, y \neq 1$  then find  $xy$

- a) 14
- b) 15
- c) 12
- d) 21

**Q2. Solve the following questions.**

1. If  $(2)^{2x-2} = (8)^{y-1} = (16)^{x-2.5}$  then find y.

2. What should be multiplied to  $6^{-2}$  so that the product is 216
  
3. If  $7^{ab} = 2401$  where  $a$  and  $b$  are positive integers and  $a \neq 1$  then which of the following are correct  
 $a = b$ ,  $a > b$ ,  $b > a$
  
4. Find smallest positive integer  $n$  such that  $\sqrt[3]{n}$  and  $\sqrt[4]{n}$  are positive integers.
  
5. Find the cube root of -10648
  
6. Write the following numbers in the form of Indices
  - a) Square root of seventh power of sixty-four
  - b) Cube of fourth root of fifty-seven
  
7. Find  $\sqrt[3]{13.824}$  and  $\sqrt[4]{0.6561}$
  
8. If  $5^n = 2$ , what is the value of  $25^{2n+1}$ ?
  
9. Show that  $(3^{201} + 3^{204}) \div (3^{201} - 3^{200} + 3^{199})$  is a perfect square.
  
10. Evaluate  

$$a = (128 - 2)(128 - 2^2)(128 - 2^3)\dots(128 - 2^7)(128 - 2^8).$$