



STANDARD 8TH: CHAPTER 3

Indices and cube root

Q1. Select all correct alternatives.

1. If $4^n = 64^2$ then what is the value of n?
 - a) $\sqrt{36}$
 - b) 4
 - c) 5
 - d) 6
2. If w is a positive integer and $w^3 = 9w$, then w^5 is equal to____.
 - a) 59049
 - b) 243
 - c) 3125
 - d) 1024
3. If $10^x \cdot 10^5 = 100^4$ what is the value of x?
 - a) 3
 - b) 4
 - c) $\frac{1}{2}$
 - d) $\sqrt[3]{27}$
4. Which of the following statement is correct?
 - a) Cube of a negative number is always positive.
 - b) Cube of a negative number is always negative.
 - c) Cube of a positive number is always positive
 - d) All of the above
5. Which of the following is a perfect cube?
 - a) 243
 - b) 27000000000
 - c) 729
 - d) 10004

6. What is the value of the expression?

$$\sqrt{16\sqrt{8\sqrt{4}}}$$

a) $(2\sqrt{2})^2$

b) $\sqrt{16\sqrt{14}}$

c) $\sqrt{16\sqrt{16}}$

d) $64^{\frac{1}{2}}$

7. If a number is doubled then which of the following is a correct statement?

a) Its cube is two times the cube of the given number.

b) Its cube is three times the cube of the given number.

c) Its cube is six times the cube of the given number.

d) Its cube is eight times the cube of the given number.

8. $2^{x+1} = 8^{2x-3}$ then find the value of x

a) 2

b) 3

c) $\frac{\sqrt{1024}}{\sqrt[4]{65536}}$

d) -1

9. What is the value of $\frac{\sqrt[5]{27 \times \sqrt{81}}}{\sqrt[3]{125}} + \frac{\sqrt{49}}{\sqrt[4]{256}}$?

a) $\frac{45}{20}$

b) $\frac{47}{20}$

c) $\frac{45}{10}$

d) $\frac{47}{10}$

10. Given that $10^{0.48} = x$, $10^{0.70} = y$ and $x^z = y^2$, then the value of z close to__.

a) 3.5

b) 1.4

c) 1.8

d) 2.9

Q2: Solve

1. Solve $\frac{1}{1+x^{b-a}+x^{c-a}} + \frac{1}{1+x^{a-b}+x^{c-b}} + \frac{1}{1+x^{b-c}+x^{a-c}}$

2. $(25)^{7.5} \times (5)^{2.5} \div (125)^{1.5} = 5$

3. If a and b are whole numbers such that $a^b = 121$, find the value of $(a-1)^{b+1}$.

4. If $5^m = 3125$, find the value of 4^{m-2}

5. Simplify: $1 - \{1 + (x^2 - 1)^{-1}\}^{-1}$.

6. If $6^{n+2} = 1296$ then $\sqrt[3]{n+727}$ is _____.

7. Three numbers are in the ratio 1:2:3 and the sum of their cubes is 4500. Find the numbers.

8. By which smallest number should 42592 be divided so that the quotient is a perfect cube?

9. Simplify the following expression.

$$\left(\frac{6a^7b^2 \times 9b}{2a}\right)^{\frac{1}{3}}$$

10. Solve for t.

$$\left(\frac{27^t}{3^{t-1}}\right) = 3\sqrt{3}$$