



MATHS

BOOKS - PEARSON IIT JEE FOUNDATION

INDICES

Example

1. If $\left[(27)^{\frac{2}{3}} - (81)^{\frac{1}{2}}\right]^a = 0$ then which of the following cannot be the value of a:

A. 1

B. 0

C. -1

D. 2

Answer: B



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2. If $\sqrt{2} = 1.414$ and $\sqrt{3} = 1.732$, find the value of $\sqrt{50} + 2\sqrt{48}$?



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3. Which of the following is the ascending order of 2^{1465} , 3^{1172} and 5^{879} ?



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4. If $x^3 < 8^4$, then find the greatest possible integer value of x .

A. 11

B. 16

C. 17

D. 15

Answer: D



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5. If $(x^y)^z = x^{y^z}$ where each of x , y and z is greater than 1, then find y in terms of z .



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6. If $\left[(27)^{\frac{2}{3}} - (81)^{\frac{1}{2}}\right]^a = 0$ then which of the following cannot be the value of a:



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7. If $\sqrt{2} = 1.414$ and $\sqrt{3} = 1.732$, find the value of $\sqrt{50} + 2\sqrt{48}$?



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8. Which of the following is the ascending order of 2^{1465} , 3^{1172} and 5^{879}

A. 5^{879} , 3^{1172} , 2^{1465}

B. 2^{1465} , 3^{1172} , 5^{879}

C. $3^{1172}, 2^{1465}, 5^{879}$

D. $3^{1172}, 5^{1465}, 2^{1465}$

Answer: B



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9. If $x^3 < 8^4$, then find the greatest possible integer value of x.



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10. If $(x^y)^z = x^{y^z}$ where each of x, y and z is greater than 1, then find y in terms of z.



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Very Short Answer Type

1. The index form of $q^{\frac{1}{p}}$ is



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2. $\frac{x^{m+n}}{x^n} = \text{_____}$.



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3. $(xy)^n = x^n \times \text{_____}$.



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4. What is the multiplicative inverse of $a^{\frac{1}{n}}$?



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5. In x^n , n is _____ and x is _____.



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6. $((x^m)^n = (x^n)^m)$. Is this equation true ?



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7. Let 'a' be a real number, $n \in N$, and $x = \sqrt[n]{a}$. In this representation radicand is _____ and index is _____.



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8. x^n is the _____ of 'x'. (nth exponent//nth power)



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9. If $m = n$, then $\frac{x^m}{x^n} = \text{_____}$.



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10. If $a^{\frac{p}{q}} = \sqrt[q]{k}$, then $k = \text{_____}$.



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11. The radical form of $a^{\frac{1}{n}}$ is _____



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12. If $a > 0$ and n is any positive integer, then the sign of $\sqrt[n]{a}$ is _____.



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13. If $a < 0$ and n is any odd integer, then the sign of $\sqrt[n]{a}$ is _____.



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14. If $a < 0$ and n is any positive even integer, then $(a)^{\frac{1}{n}}$ to the set of real numbers. (Does not belong/belongs)



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15. If $X^{\circ} = 1$, then x is _____



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16. If $x^{-n} = \frac{1}{p}$, then $p =$ _____.



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17. $\sqrt[3]{8^{-2}} =$ _____.



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18. If $x^k = 1$, ($x \neq 1$) then $k =$ _____. (0/any real number)



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19. $x = \sqrt[5]{10}$, the other form of x is _____.



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20. $(2^0 - 3^0) \times 5^0 =$ _____.



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21. If $x^{-\left(\frac{p}{q}\right)} = \left(\frac{1}{x}\right)^k$ then $k =$ _____.



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22. If $8^m = 32$, then $m =$ _____.



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23. The radical form of $\left(6^{\frac{1}{2}}\right)^{\frac{1}{3}}$ is _____.



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24. If $\left(\frac{x^m \times x^n}{x^p}\right)^q = x^k$, then $k =$ _____.



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25. The property by which $((xy)^n = x^n \times y^n)$ is known as _____ property.



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26. Express the following in exponential form.

(i) 625 (ii) 1024

(iv) 507 (v) 360



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27. Express the following as pth power of qth root of x.

(i) $(156)^{\frac{5}{3}}$ (ii) $(-23)^{\frac{3}{7}}$

(iii) $\left(\frac{2}{3}\right)^{\frac{3}{2}}$ (iv) $(0.61)^{\frac{5}{9}}$



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28. Write the following in exponential form and redical form.

(i) Cube root of 729

(ii) Fifth root of 1990

(iii) Square root of 2001

(iv) Seventh root of 777



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29. Evaluate $(14^2 - 13^2)^{\frac{5}{3}}$.



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30. Find the values of the following.

(i) 6^3

(ii) 3^6

(iii) If $a = 3$ and $b = 4$, find $b^a - a^b$

(iv) $3^4 - 4^2$



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Short Answer Type

1. Simplify : $p^{n+1} \times p^{2n+1} \times p^{3-n}$



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2. Evaluate the following.

(i) fifth root of 243

(ii) Seventh root of (0.0000128)



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3. Simplify $\left(\frac{q^{3-7q} \times q^{6-2q}}{q^{2q} \times q^{9-2q}} \right)^{\frac{1}{9}}$.



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4. If $\sqrt{2} = 1.414$, $\sqrt{3} = 1.732$ and $\sqrt{5} = 2.236$, find the values of the following.

(i) $\sqrt{98}$ (ii) $\sqrt{300}$

(iii) $\sqrt{128} + \sqrt{48}$ (iv) $2\sqrt{75} - 3\sqrt{12}$



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5. If $21168 = x^4 \times y^3 \times z^2$, find $(x + y + z)^{\frac{y+z}{x+y}}$, where x, y and z are positive integers.



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6. Simplify $\frac{5(81)^{n+1} - 3^{4n+5}}{3 \times 3^{4n} + (81)^n}$.



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7. (1) If $5^{n+2} = 625$, find $[(n+3)]^{\frac{1}{3}}$: (2) If $\left(\frac{32}{243}\right)^n = \frac{8}{27}$, find $\left(\frac{n+0.4}{1024}\right)^{-n}$



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8. (i) Simplify $\left(2^{\frac{2}{3}} - 2^{\frac{-2}{3}}\right)\left(2^{\frac{4}{3}} + 1 + 2^{\frac{-4}{3}}\right)$

(ii) $\left[(\sqrt[6]{7})^2 + (\sqrt[6]{7})^{-2}\right]\left[(\sqrt[6]{7})^4 - 1 + (\sqrt[6]{7})^{-4}\right]$



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9. If $16200 = 2^a \times 3^b \times c$, then find a, b, c.



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10. Simplify $\left(\frac{p^a}{p^b}\right)^c \times \left(\frac{p^b}{p^c}\right) \times \left(\frac{p^c}{p^a}\right)$



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11. If $\left[\sqrt[9]{\left(\frac{2}{3}\right)^5}\right]^{\sqrt{x-5}} = a^0$, find the value of x .



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12. Simplify $\frac{(p^{a+b})^5 \cdot (p^{b+c})^5 \cdot (p^{c+a})^5}{(p^a \cdot p^b \cdot p^c)^{10}}$



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13. If $5^{3x+2} = 25 \times 5^{(4x-1)}$, find the value of x .



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14. Which of the following is greater between each of the two numbers ?

(i) 3^{30} , 7^{15} (ii) 2^{25} , 4^{14} (iii) 2^{21} and 3^{14}

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15. If $5^x = 3^y = 45^z$, prove that $\frac{1}{z} = \frac{1}{x} + \frac{2}{y}$.

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Essay Type

1. Prove that

$$\frac{1}{1+p+q^{-1}} + \frac{1}{1+q+r^{-1}} + \frac{1}{1+r+p^{-1}} = 1, \text{ if } pqr = 1$$



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2.
$$\frac{(a+b+c)^{a+b}(a+b+c)^{b+c}(a+b+c)^{c+a}}{\left[(a+b+c)^a(a+b+c)^b(a+b+c)^c\right]^2}$$



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3. (i) $(a^{p+q})^{p-q}(a^{q+r})^{q-r}(a^{r+p})^{r-p}$ (ii)

$$\left[\left(\frac{a}{b}\right)^{\sqrt{p}+\sqrt{q}}\right]^{\sqrt{p}-\sqrt{q}} \left[\left(\frac{a}{b}\right)^{\sqrt{q}+\sqrt{r}}\right]^{\sqrt{q}-\sqrt{r}} \left[\left(\frac{a}{b}\right)^{\sqrt{r}+\sqrt{p}}\right]^{\sqrt{r}-\sqrt{p}}$$



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4. Prove that

$$\left(\frac{x^{-1} + y^{-1}}{x^{-1}}\right)^{-1} + \left(\frac{x^{-1} - y^{-1}}{x^{-1}}\right)^{-1} = \frac{2y^2}{y^2 - x^2}$$



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5. If a, b, c are real numbers, then show that

$$\sqrt[5]{ab^{-1}} \times \sqrt[5]{bc^{-1}} \times \sqrt[5]{ca^{-1}} = 1.$$



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Concept Application Level 1

1. Express $122^{\frac{2}{3}}$ as qth root of x^p using $x^{\frac{p}{q}} = (x^p)^{\frac{1}{q}}$.

A. $\sqrt[6]{122}$

B. $\sqrt[3]{122}$

C. $\sqrt[3]{(122)^2}$

D. $\sqrt{(122)^3}$

Answer: C



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2. Evaluate $(16)^{\frac{5}{2}}$.

A. 1024

B. 512

C. 256

D. 128

Answer: A



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3. Evaluate a^n .

A. 64

B. 128

C. 32

D. 256

Answer: B



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4. $(21^2 - 15^2)^{\frac{4}{3}} =$

A. $36\sqrt[3]{6}$

B. 1296

C. $\sqrt[3]{1296}$

D. $(\sqrt[3]{6})^4$

Answer: B



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5. $64^{\frac{2}{3}} \times 64^{\frac{1}{3}} \times 64^{\frac{-5}{3}}$

A. $\frac{1}{64}$

B. $\frac{1}{16}$

C. 32

D. $\frac{1}{32}$

Answer: B



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6. Find value of $(61^2 - 11^2)^{\frac{3}{2}}$.

A. 50^3

B. 216000

C. 3600

D. 60

Answer: B



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7. $\sqrt[6]{0.004096} =$

A. 0.2

B. 0.4

C. 0.6

D. 0.8

Answer: B



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8. $\left[\frac{169^{-3}}{(196)^{-8}} \right]^{\frac{1}{48}} =$

A. $\frac{14^{\frac{1}{3}}}{13^{\frac{1}{8}}}$

B. $\frac{14^{-\frac{1}{3}}}{13^{-\frac{1}{8}}}$

C. $\frac{13^{\frac{1}{8}}}{14^{\frac{1}{3}}}$

D. $\frac{14^{\frac{1}{8}}}{13^{\frac{1}{3}}}$

Answer: A



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9. How do you find the value of $x^2 + 1/x^2$ given that $x = 2 + \sqrt{3}$?



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10. $81^{\frac{1}{4}} \times 9^{3/2} \times 27^{-\frac{4}{3}} =$

A. 1

B. 3

C. 9

D. $\frac{1}{3}$

Answer: A



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11. If $4(4x)^7 = 4^{6^2}$, then what is the value of x ?

A. 5

B. 25

C. 64

D. 256

Answer: D



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12. If $7^n = 2401$, then $7^{n-5} =$

A. 1

B. $\frac{1}{7}$

C. 7

D. 49

Answer: B



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13. $\sqrt[5]{0.03125} =$

A. 0.25

B. 0.5

C. 0.126

D. 0.15

Answer: B



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14. Find the value of $\left(\frac{225}{49}\right)^{3/2}$.

A. $\frac{343}{3375}$

B. $\frac{15}{7}$

C. $\frac{3375}{343}$

D. $\frac{7}{15}$

Answer: C



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15. Find the value the value of $3^{2^{0-1-2-3}}$

A. 9^{-8}

B. 3^{256}

C. 9

D. 3

Answer: C



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16. $4 \times (256)^{\frac{-1}{4}} \div (243)^{\frac{1}{5}} =$

A. $\frac{1}{3}$

B. $\frac{4}{3}$

C. $\frac{3}{4}$

D. 1

Answer: A



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17. Find the value of $(0.000064)^{\frac{2}{3}} \div (0.0016)^{\frac{3}{4}}$.

A. 3^{-1}

B. 4^{-1}

C. 5^{-1}

D. 10^{-1}

Answer: C



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18. If $6^n = 1296$, then 6^{n-3} is

A. $\frac{1}{6}$

B. 6

C. 0.6

D. Data insufficient

Answer: B



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19. The value of $(9^2 + 40^2)^{\frac{3}{2}} =$

A. 41

B. 1681

C. 68921

D. $\frac{1}{68921}$

Answer: C



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20. $[(8^\circ - 7^\circ)(8^\circ + 7^\circ)]^{0^{78}} =$

A. 1

B. 0

C. Not defined

D. None of these

Answer: C

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21. Value of $\left(\frac{125}{343}\right)^{\frac{2}{3}} =$

A. $\frac{5}{7}$

B. $\frac{7}{5}$

C. $\frac{25}{49}$

D. $\frac{49}{25}$

Answer: C

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22. If $(81)^x = \frac{1}{(125)^y}$ and x, y are integers, then find the value of $12xy$.

A. 0

B. 1

C. 12

D. None of these

Answer: A



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23. If $(6x)^6 = 6^{2^3}$, then find the value of x .

A. 1

B. $\sqrt{6}$

C. $\sqrt[3]{6}$

D. $\sqrt[6]{6}$

Answer: C



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24. Find the value of $(6561)^{(0.125)} + (3125)^{(0.2)}$.

A. 4

B. 6

C. 8

D. None of these

Answer: C



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25. Find the value of $(256)^{(0.125)} + (625)^{(0.25)}$

A. 2

B. 7

C. 11

D. 14

Answer: B



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26. Evaluate the following $\sqrt{\frac{1}{16}} + (0.09)^{\frac{-1}{2}} - (64)^{\frac{5}{6}} \times 7^{\circ}$.

A. $\frac{341}{12}$

B. $\frac{-341}{12}$

C. $\frac{341}{6}$

D. $\frac{-314}{6}$

Answer: B



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27. If $x^y = 64$, where $y \neq 1$, find the sum of greatest possible value of $\frac{x}{y}$ and greatest possible value of $\frac{y}{x}$.

A. $\frac{13}{4}$

B. 7

C. 67

D. 4

Answer: B

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28. Which is the greatest among $(81)^{18}$, $(243)^{15}$, $(27)^{21}$ and $(9)^{38}$?

A. $(243)^{15}$

B. $(27)^{21}$

C. $(9)^{38}$

D. $(81)^{18}$

Answer: C

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29. Find the value of $4^{2^{2^{136}}}$.

A. $(256)^{30}$

B. $(4)^{120}$

C. 4^8

D. 2^8

Answer: D



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30. Find the value of $(0.000064)^{\frac{5}{6}} \div (0.00032)^{\frac{6}{5}}$

A. 0.2

B. 0.4

C. 5

D. 2.5

Answer: C



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31. The following are the steps involved in solving the problem, if $\left(\frac{32}{243}\right)^n = \frac{8}{27}$, find $\left(\frac{n+0.4}{1024}\right)^{-n}$. Arrange them in sequential order from the first to the last.

$$(A) \left(\frac{32}{243}\right)^n = \frac{8}{27} \Rightarrow \left(\left(\frac{2}{5}\right)^5\right)^n = \left(\frac{2}{3}\right)^3$$

$$(B) (2^{-10})^{\frac{-3}{5}} = 2^6 = 64$$

$$(C) 5n = 3 \Rightarrow n = \frac{3}{5}$$

$$(D) \left(\frac{n+0.4}{1024}\right)^{-n} = \left(\frac{\frac{3}{5}+0.4}{1024}\right)^{\frac{-3}{5}} = \left(\frac{1}{1024}\right)^{\frac{-3}{5}}$$

A. ACDB

B. ACBD

C. CADB

D. CABD

Answer: A



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32. Find the value of $\sqrt{18} + \sqrt{12}$, if $\sqrt{12} = 1.414$ and $\sqrt{3} = 1.732$.

The following are the steps involved in solving the above problem. Arrange that in sequential order.

(A) $4.242 + 3.464 = 7.706$

(B) $3\sqrt{2} + 2\sqrt{3}$

(C) $\sqrt{18} + \sqrt{12} = \sqrt{3^2 \times 2} + \sqrt{2^2 \times 3}$

(D) $3(1.414) + 2(1.732)$

A. CBAD

B. CABD

C. CADB

D. CBDA

Answer: D



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33. $(65.61)^{\frac{1}{8}} = \underline{\hspace{2cm}}$.

A. $\frac{3}{\sqrt[4]{10}}$

B. 0.3

C. 0.03

D. $\frac{3}{\sqrt{10}}$

Answer: A

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Concept Application Level 2

1. Find the value of $\left[\left[\frac{a}{b}\right]^{\sqrt{99}-\sqrt{97}}\right]^{\sqrt{99}+\sqrt{97}}$

A. $\frac{b^2}{a^2}$

B. $\sqrt{\frac{b}{a}}$

C. $\sqrt{\frac{b}{a}}$

D. $\frac{a^2}{b^2}$

Answer: D

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2. If $\frac{1}{(243)^x} = (729)^y = 3^3$, then find the value of $5x + 6y$.

A. 33

B. 99

C. 297

D. 0

Answer: D



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3.
$$\frac{\left(\frac{1}{x} + y\right)^{(a+b)} \left(\frac{1}{y} - x\right)^{-(p+q)}}{\left(\frac{1}{x} - y\right)^{-(p+q)} \left(x + \frac{1}{y}\right)^{(a+b)}} =$$

A. $\left(\frac{x}{y}\right)^{(a+b) + (p+q)}$

B. $\left(\frac{y}{x}\right)^{(a+b) + (p+q)}$

C. $\left(\frac{y}{x}\right)^{(a+b) - (p+q)}$

D. $\left(\frac{x}{y}\right)^{(a+b) - (p+q)}$

Answer: B



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4. If $7^{(5x-8)} \times 5^{(x+2)} = 30625$, then find x , an integer.

A. 4

B. 3

C. 2

D. 1

Answer: C

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5. If $a^x = b^y = a^z$ and $a^3 = b^2c$, then $\frac{3}{x} - \frac{2}{y} =$

A. $\frac{x}{y}$

B. $\frac{y}{x}$

C. xyz

D. $\frac{1}{z}$

Answer: D

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6. Simplified form of
$$\frac{\left(p + \frac{1}{q}\right)^{(p-q)} \left(p - \frac{1}{q}\right)^{(p+q)}}{\left(q + \frac{1}{p}\right)^{(p-q)} \left(q - \frac{1}{p}\right)^{(p+q)}} =$$

A. $\left(\frac{p}{q}\right)^{2q}$

B. $\left(\frac{q}{p}\right)^{2q}$

C. $\left(\frac{p}{q}\right)^p$

D. $\left(\frac{q}{p}\right)^q$

Answer: A



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7. If $X = a^1b^2c^3\dots z^{26}$ and $Y = z^1y^2x^3\dots a^{26}$ where, $abcd\dots z = 54\sqrt{64}$, then find XY .

A. 6

B. 8

C. 9

D. Cannot be determined

Answer: B



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8. If $a^b = 256$, then find the maximum possible value of $a.b$, where a and b are positive integers.

A. 12

B. 16

C. 32

D. None of these

Answer: D



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9. If $11^x = 3^y = 99^z$, then $\frac{1}{x} + \frac{1}{y} + \frac{1}{z}$

A. $\frac{2}{z} - \frac{1}{y}$

B. $\frac{2}{z} + \frac{1}{y}$

C. $-\frac{1}{y}$

D. 0

Answer: A



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10. If $a^{b^c} = 6561$, then find the least possible value of (a, b, c) , where a, b and c are integers.

A. 24

B. 36

C. 162

D. None of these

Answer: D



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11.

If

$$(xy)^{(a-1)} = z, (yz)^{(b-1)} = x \text{ and } (xz)^{(c-1)} = y, \text{ and } xyz$$

is not $-1, 0$ or 1 , then which of the following is equal to

$$ab + bc + ca?$$

A. abc

B. $\frac{abc}{2}$

C. $2abc$

D. None of these

Answer: C



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12. If $x^{200} < 3^{300}$, then the greatest possible integral value of x .

A. 3

B. 5

C. 4

D. 2

Answer: B



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13. If $5^{n-3} = 625$, then 5^{n+3} is _____.

A. 5^{12}

B. 5^9

C. 5^{10}

D. 5^{15}

Answer: C



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14. Find the value of $(0.00243)^{\frac{3}{5}} + (0.0256)^{\frac{3}{4}}$.

A. 0.083

B. 0.073

C. 0.091

D. 0.081

Answer: C



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15. $\left[\frac{(a^0 + b^0)(a^0 - b^0)}{a^2 - b^2} \right]^{0+5}$ (where $a \neq 0$ and $b \neq 0$) is

A. 0

B. 1

C. -1

D. Not defined

Answer: D



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16. If $(1331)^{-x} = (225)^y$ where x and y are integers, then find the value of $3xy$.

A. 0

B. 1

C. -3

D. 3

Answer: A

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17. If $(\sqrt{3})^{x+y} = 9$ and $(\sqrt{2})^{x-y} = 32$, then $2x + y$ is _____.

A. 1

B. 0

C. 17

D. 11

Answer: D



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18. If $6^{x-y} = 36$ and $3^{x+y} = 729$, then find $x^2 - y^2$.

A. 12

B. 4

C. 24

D. 8

Answer: A



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19. If $p^{q^r} = 512$ find the minimum possible value of $(p)(q)(r)$, where p, q, r are positive integers.

A. 18

B. 12

C. 24

D. 512

Answer: B



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20. If $2^{x+y} = 128$ and $4^{x-y} = 16$, then find $\frac{x}{y}$.

A. $\frac{2}{3}$

B. $\frac{5}{9}$

C. $\frac{9}{5}$

D. $\frac{3}{5}$

Answer: C



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Concept Application Level 3

1. If $x^{400} < 4^{600}$, then find the greatest possible integral value of x .

A. 6

B. 5

C. 7

D. 4

Answer: C



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2. If $2^x = 3^y = 6^z$, then $\frac{1}{x} + \frac{1}{y} + \frac{1}{z} =$

A. $\frac{2}{x}$

B. $\frac{2}{y}$

C. $\frac{2}{z}$

D. 1

Answer: C



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3. Which of the following is the descending order of $(343)^3$, $(2401)^2$ and $(49)^5$?

A. $(49)^5$, $(343)^3$, $(2401)^2$

B. $(2401)^2$, $(343)^3$, $(49)^5$

C. $(343)^3$, $(49)^5$, $(2401)^2$

D. $(49)^5$, $(2401)^2$, $(343)^3$

Answer: A



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4. If $x^y = y^z = z^x$ and $xz = y^2$ then which of the following is correct?

A. $z = \frac{2xy}{x + y}$

B. $y = \frac{x - z}{x + z}$

C. $x = \frac{y - z}{yz}$

D. $xyz = \frac{x - z + y}{x + z - y}$

Answer: A



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5. If $a = (2^{-2} - 2^{-3})$, $b = (2^{-3} - 2^{-4})$ and $c = (2^{-4} - 2^{-2})$ then find the value of $a^3 + b^3 + c^3$.

A. $\frac{-9}{1024}$

B. $\frac{-9}{2048}$

C. 0

D. 1

Answer: B



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6. Which is the greatest among 2^{156} , 4^{79} , 128^{23} and 8^{54}

A. 4^{79}

B. 128^{23}

C. 2^{156}

D. 8^{54}

Answer: D

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7. Which is the greatest among $(3)^{198}$, $(27)^{64}$, $(9)^{100}$ and $(81)^{49}$?

A. $(9)^{100}$

B. $(81)^{49}$

C. $(27)^{64}$

D. 3^{198}

Answer: A

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Test Your Concepts Very Short Answer Type Questions

1. The index form of $\sqrt[p]{q}$ is _____



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2. $\frac{x^{m+n}}{x^n} = \text{_____}$.



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3. $(xy)^n = x^n \times \text{_____}$.



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4. What is the multiplicative inverse of $a^{\frac{1}{n}}$?



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5. In x^n , n is _____ and x is _____.



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6. $((x^m)^n = (x^n)^m)$. Is this equation true ?



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7. Let 'a' be a real number, $n \in N$, and $x = \sqrt[n]{a}$. In this representation radical and is _____ and index is _____.



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8. x^n is the _____ of 'x'. (nth exponent//nth power)



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9. If $m = n$, then $\frac{x^m}{x^n} = \underline{\hspace{2cm}}$.



Watch Video Solution

10. If $a^{\frac{p}{q}} = \sqrt[q]{k}$, then $k = \underline{\hspace{2cm}}$.



Watch Video Solution

11. The radical form of $a^{\frac{1}{n}}$ is $\underline{\hspace{2cm}}$



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12. If $a > 0$ and n is any positive integer, then the sign of $\sqrt[n]{a}$ is _____.



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13. If $a < 0$ and n is any odd integer, then the sign of $\sqrt[n]{a}$ is _____.



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14. If $a < 0$ and n is any positive even integer, then $(a)^{\frac{1}{n}}$ to the set of real numbers. (Does not belong/belongs)



Watch Video Solution

15. If $5^x = 1$, then x is _____



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16. If $x^{-n} = \frac{1}{p}$, then $p =$ _____.



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17. $\sqrt[3]{8^{-2}} =$ _____.



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18. If $x^k = 1$, ($x \neq 1$) then $k =$ _____. (0/any real number)



Watch Video Solution

19. $x = \sqrt[5]{10}$, the other form of x is _____.



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20. $(2^0 - 3^0) \times 5^0 =$ _____



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21. If $x^{-\left(\frac{p}{q}\right)} = \left(\frac{1}{x}\right)^k$, then $k =$ _____



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22. If $8^m = 32$, then $m =$ _____.



Watch Video Solution

23. The radical form of $\left(6^{\frac{1}{2}}\right)^{\frac{1}{3}}$ is ____



Watch Video Solution

24. If $\left(\frac{x^m \times x^n}{x^p}\right)^q = x^k$, then $k =$ _____.



Watch Video Solution

25. The property by which $((xy)^n = x^n \times y^n)$ is known as _____ property.



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26. Express the following in exponential form.

(i) 625 (ii) 1024

(iii) 507 (iv) 360



Watch Video Solution

27. Express the following in exponential form

1024



Watch Video Solution

28. Express the following in exponential form

1250



Watch Video Solution

29. Express the following in exponential form

507



Watch Video Solution

30. Express the following in exponential form

360



Watch Video Solution

31. Express the following as pth power of qth root of x.

$(156)^{\frac{5}{3}}$



Watch Video Solution

32. Express the following as pth power of qth root of x.

(i) $(156)^{\frac{5}{3}}$ (ii) $(-23)^{\frac{3}{7}}$

(iii) $\left(\frac{2}{3}\right)^{\frac{3}{2}}$ (iv) $(0.61)^{\frac{5}{9}}$



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33. Express the following as pth power of qth root of x.

(i) $(156)^{\frac{5}{3}}$ (ii) $(-23)^{\frac{3}{7}}$

(iii) $\left(\frac{2}{3}\right)^{\frac{3}{2}}$ (iv) $(0.61)^{\frac{5}{9}}$



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34. Express the following as pth power of qth root of x.

(i) $(156)^{\frac{5}{3}}$ (ii) $(-23)^{\frac{3}{7}}$

(iii) $\left(\frac{2}{3}\right)^{\frac{3}{2}}$ (iv) $(0.61)^{\frac{5}{9}}$



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35. Write the following in exponential form and redical form.

(i) Cube root of 729

(ii) Fifth root of 1990

(iii) Square root of 2001

(iv) Seventh root of 777



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36. Write the following in exponential form and redical form.

(i) Cube root of 729

(ii) Fifth root of 1990

(iii) Square root of 2001

(iv) Seventh root of 777



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37. Write the following in exponential form and redical form.

(i) Cube root of 729

(ii) Fifth root of 1990

(iii) Square root of 2001

(iv) Seventh root of 777



Watch Video Solution

38. Write the following in exponential form and redical form.

(i) Cube root of 729

(ii) Fifth root of 1990

(iii) Square root of 2001

(iv) Seventh root of 777



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39. Evaluate $(14^2 - 13^2)^{\frac{5}{3}}$.



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40. Find the value of the following

$$6^3$$



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41. Find the value of the following

$$3^6$$



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42. Find the value of the following

If $a=3$ and $b=4$, find $b^a - a^b$



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43. Find the value of the following

$$3^4 - 4^2$$



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Test Your Concepts Short Answer Type Questions

1. Simplify : $p^{n+1} \times p^{2n+1} \times p^{3-n}$



Watch Video Solution

2. Evaluate the following.

(i) fifth root of 243

(ii) Seventh root of (0.0000128)



Watch Video Solution

3. Evaluate the following.

(i) fifth root of 243

(ii) Seventh root of (0.0000128)



Watch Video Solution

4. Simplify $\left(\frac{q^{3-7}q \times q^{6-2q}}{q^{2q} \times q^{9-2q}} \right)^{\frac{1}{9}}$.

[Watch Video Solution](#)

5. If $\sqrt{2} = 1.414$, $\sqrt{3} = 1.732$ and $\sqrt{5} = 2.236$, find the values of the following.

(i) $\sqrt{98}$ (ii) $\sqrt{300}$

(iii) $\sqrt{128} + \sqrt{48}$ (iv) $2\sqrt{75} - 3\sqrt{12}$

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6. If $\sqrt{2} = 1.414$, $\sqrt{3} = 1.732$ and $\sqrt{5} = 2.236$, find the values of the following.

(i) $\sqrt{98}$ (ii) $\sqrt{300}$

(iii) $\sqrt{128} + \sqrt{48}$ (iv) $2\sqrt{75} - 3\sqrt{12}$

[Watch Video Solution](#)

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8. If $\sqrt{2} = 1.414$, $\sqrt{3} = 1.732$ and $\sqrt{5} = 2.236$, find the values of the following.

(i) $\sqrt{98}$ (ii) $\sqrt{300}$

(iii) $\sqrt{128} + \sqrt{48}$ (iv) $2\sqrt{75} - 3\sqrt{12}$



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9. If $21168 = x^4 \times y^3 \times z^2$, find $(x + y + z)^{\frac{y+z}{x+y}}$, where x, y and z are positive integers.



Watch Video Solution

10. Simplify $\frac{5(81)^{n+1} - 3^{4n+5}}{3 \times 3^{4n} + (81)^n}$.



Watch Video Solution

11. (1) If $5^{n+2} = 625$, find $[(n+3)]^{\frac{1}{3}}$: (2) If $\left(\frac{32}{243}\right)^n = \frac{8}{27}$, find $\left(\frac{n+0.4}{1024}\right)^{-n}$



Watch Video Solution

12. If $\left(\frac{32}{243}\right)^n = \frac{8}{27}$, then find $\left(\frac{n + 0.4}{1024}\right)^{-n}$



Watch Video Solution

13. simplify $\left(2^{\frac{2}{3}} - 2^{-\frac{2}{3}}\right)\left(2^{\frac{4}{3}} + 1 + 2^{-\frac{4}{3}}\right)$



Watch Video Solution

14. (i) Simplify $\left(2^{\frac{2}{3}} - 2^{-\frac{2}{3}}\right)\left(2^{\frac{4}{3}} + 1 + 2^{-\frac{4}{3}}\right)$

(ii) $\left[(\sqrt[6]{7})^2 + (\sqrt[6]{7})^{-2}\right]\left[(\sqrt[6]{7})^4 - 1 + (\sqrt[6]{7})^{-4}\right]$



Watch Video Solution

15. If $16200 = 2^a \times 3^b \times c$, then find a, b, c.



16. Simplify $\left(\frac{p^a}{p^b}\right) \times \left(\frac{p^b}{p^c}\right) \times \left(\frac{p^c}{p^a}\right)^b$



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17. If $\left[\sqrt[9]{\left(\frac{2}{3}\right)^5}\right]^{\sqrt{x-5}} = a^0$, find the value of x .



Watch Video Solution

18. Simplify $\frac{(p^{a+b})^5 \cdot (p^{b+c})^5 \cdot (p^{c+a})^5}{(p^a \cdot p^b \cdot p^c)^{10}}$



Watch Video Solution

19. If $5^{3x+2} = 25 \times 5^{(4x-1)}$, find the value of x .



Watch Video Solution

20. Which of the following is greater between each of the two numbers ?

(i) 3^{30} , 7^{15} (ii) 2^{25} , 4^{14} (iii) 2^{21} and 3^{14}



Watch Video Solution

21. Which of the following is greater between each of the two numbers ?

(i) 3^{30} , 7^{15} (ii) 2^{25} , 4^{14} (iii) 2^{21} and 3^{14}



Watch Video Solution

22. Which of the following is greater between each of the two numbers ?

(i) 3^{30} , 7^{15} (ii) 2^{25} , 4^{14} (iii) 2^{21} and 3^{14}



Watch Video Solution

23. If $5^x = 3^y = 45^z$, prove that $\frac{1}{z} = \frac{1}{x} + \frac{2}{y}$.



Watch Video Solution

24. Prove that

$$\frac{1}{1+p+q^{-1}} + \frac{1}{1+q+r^{-1}} + \frac{1}{1+r+p^{-1}} = 1, \text{ if } pqr = 1.$$



Watch Video Solution

25.
$$\frac{(a+b+c)^{a+b}(a+b+c)^{b+c}(a+b+c)^{c+a}}{\left[(a+b+c)^a(a+b+c)^b(a+b+c)^c\right]^2}$$



Watch Video Solution

26. Simplify the given expressions

$$(a^{p+q})^{p-q}(a^{q+r})^{q-r}(a^{r+p})^{r-p}$$



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27.

$$\left[\left(\frac{a}{b}\right)^{\sqrt{p}+\sqrt{q}}\right]^{\sqrt{p}-\sqrt{q}}\left[\left(\frac{a}{b}\right)^{\sqrt{q}+\sqrt{r}}\right]^{\sqrt{q}-\sqrt{r}}\left[\left(\frac{a}{b}\right)^{\sqrt{r}+\sqrt{p}}\right]^{\sqrt{r}-\sqrt{p}}$$



Watch Video Solution

28. Prove that

$$\left(\frac{x^{-1} + y^{-1}}{x^{-1}}\right)^{-1} + \left(\frac{x^{-1} - y^{-1}}{x^{-1}}\right)^{-1} = \frac{2y^2}{y^2 - x^2}$$



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29. If a, b, c are real numbers, then show that

$$\sqrt[5]{ab^{-1}} \times \sqrt[5]{bc^{-1}} \times \sqrt[5]{ca^{-1}} = 1.$$



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Concept Application Level 1

1. Express $122^{\frac{2}{3}}$ as qth root of x^p using $x^{\frac{p}{q}} = (x^p)^{\frac{1}{q}}$.

A. $\sqrt[6]{122}$

B. $\sqrt[3]{122}$

C. $\sqrt[3]{(122)^2}$

D. $\sqrt{(122)^3}$

Answer: C



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2. Evaluate $(16)^{\frac{5}{2}}$.

A. 1024

B. 512

C. 256

D. 128

Answer: A



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3. Evaluate a^n

A. 64

B. 128

C. 32

D. 256

Answer: B



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4. $(21^2 - 15^2)^{\frac{4}{3}} =$

A. $36\sqrt[3]{6}$

B. 1296

C. $\sqrt[3]{1296}$

D. $(\sqrt[3]{6})^4$

Answer: B



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5. simplify $64^{\frac{2}{3}} \times 64^{\frac{1}{3}} \times 64^{\frac{-5}{3}} = \text{_____}$

A. $\frac{1}{64}$

B. $\frac{1}{16}$

C. 32

D. $\frac{1}{32}$

Answer: B

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6. Find value of $(61^2 - 11^2)^{\frac{3}{2}}$.

A. 50^3

B. 216000

C. 3600

D. 60

Answer: B

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7. $\sqrt[6]{0.004096} =$

A. 0.2

B. 0.4

C. 0.6

D. 0.8

Answer: B



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$$8. \left[\frac{169^{-3}}{(196)^{-8}} \right]^{\frac{1}{48}} =$$

A. $\frac{14^{\frac{1}{3}}}{13^{\frac{1}{8}}}$

B. $\frac{14^{-\frac{1}{3}}}{13^{-\frac{1}{8}}}$

C. $\frac{13^{\frac{1}{8}}}{14^{\frac{1}{3}}}$

D. $\frac{14^{\frac{1}{8}}}{13^{\frac{1}{3}}}$

Answer: A



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9. If $x = \left(8^{\frac{2}{3}} \cdot 32^{-\frac{2}{5}}\right)$, then $x^{-5} = \underline{\hspace{2cm}}$

A. $\frac{1}{32}$

B. -1

C. 1

D. -5

Answer: C



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10. simplify $81^{\frac{1}{4}} \times 9^{\frac{3}{2}} \times 27^{-\frac{4}{3}} = \underline{\hspace{2cm}}$

A. 1

B. 3

C. 9

D. $\frac{1}{3}$

Answer: A



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11. If $4(4x)^7 = 4^{6^2}$, then what is the value of x ?

A. 5

B. 25

C. 64

D. 256

Answer: D



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12. If $7^n = 2401$, then $7^{n-5} =$

A. 1

B. $\frac{1}{7}$

C. 7

D. 49

Answer: B



Watch Video Solution

13. find value $\sqrt[5]{0.03125} = \underline{\hspace{2cm}}$

A. 0.25

B. 0.5

C. 0.126

D. 0.15

Answer: B



Watch Video Solution

14. Find the value of $\left(\frac{225}{49}\right)^{3/2}$.

A. $\frac{343}{3375}$

B. $\frac{15}{7}$

C. $\frac{3375}{343}$

D. $\frac{7}{15}$

Answer: C



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15. Find the value the value of $3^{2^{0-1}-2^{-3}}$

A. 9^{-8}

B. 3^{256}

C. 9

D. 3

Answer: C

[Watch Video Solution](#)

16. $4 \times (256)^{\frac{-1}{4}} \div (243)^{\frac{1}{5}} =$

A. $\frac{1}{3}$

B. $\frac{4}{3}$

C. $\frac{3}{4}$

D. 1

Answer: A

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17. Find the value of $(0.000064)^{\frac{2}{3}} \div (0.0016)^{\frac{3}{4}}$.

A. 3^{-1}

B. 4^{-1}

C. 5^{-1}

D. 10^{-1}

Answer: C



Watch Video Solution

18. If $6n = 1296$, then 6^{n-3} is

A. $\frac{1}{6}$

B. 6

C. 0.6

D. Data insufficient

Answer: B



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19. The value of $(9^2 + 40^2)^{\frac{3}{2}} =$

A. 41

B. 1681

C. 68921

D. $\frac{1}{68921}$

Answer: C



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20. $[(8^\circ - 7^\circ)(8^\circ + 7^\circ)]^{0^{78}} =$

A. 1

B. 0

C. Not defined

D. 2

Answer: C



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21. Value of $\left(\frac{125}{343}\right)^{\frac{2}{3}} =$

A. $\frac{5}{7}$

B. $\frac{7}{5}$

C. $\frac{25}{49}$

D. $\frac{49}{25}$

Answer: C



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22. If $(81)^x = \frac{1}{(125)^y}$ and x, y are integers, then find the value of $12xy$.

A. 0

B. 1

C. 12

D. 60

Answer: A



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23. If $(6x)^6 = 6^{2^3}$, then find the value of x .

A. 1

B. $\sqrt{6}$

C. $\sqrt[3]{6}$

D. $\sqrt[6]{6}$

Answer: C



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24. Find the value of $(6561)^{(0.125)} + (3125)^{(0.2)}$.

A. 4

B. 6

C. 8

D. 9

Answer: C



Watch Video Solution

25. Find the value of $(256)^{(0.125)} + (625)^{(0.25)}$

A. 2

B. 7

C. 11

D. 14

Answer: B



Watch Video Solution

26. Evaluate the following $\sqrt{\frac{1}{16}} + (0.09)^{\frac{-1}{2}} - (64)^{\frac{5}{6}} \times 7^{\circ}$.

A. $\frac{341}{12}$

B. $\frac{-341}{12}$

C. $\frac{341}{6}$

D. $\frac{-341}{6}$

Answer: B



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27. If $x^y = 64$, where $y \neq 1$, then find the sum of greatest possible value of $\frac{x}{y}$ and greatest possible value of $\frac{y}{2}$

A. $\frac{13}{4}$

B. 7

C. 67

D. 4

Answer: B



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28. Which is the greatest among $(81)^{18}$, $(243)^{15}$, $(27)^{21}$ and $(9)^{38}$?

A. $(243)^{15}$

B. $(27)^{21}$

C. $(9)^{38}$

D. $(81)^{18}$

Answer: C

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29. Find the value of $4^{2^{2^{136}}}$.

A. $(256)^{30}$

B. $(4)^{120}$

C. 4^8

D. 2^8

Answer: D

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30. Find the value of $(0.000064)^{\frac{5}{6}} \div (0.00032)^{\frac{6}{5}}$

A. 0.2

B. 0.4

C. 5

D. 2.5

Answer: C



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31. The following are the steps involved in solving the problem,

if $\left(\frac{32}{243}\right)^n = \frac{8}{27}$, find $\left(\frac{n+0.4}{1024}\right)^{-n}$. Arrange them in sequential order from the first to the last.

$$(A) \left(\frac{32}{243}\right)^n = \frac{8}{27} \Rightarrow \left(\left(\frac{2}{5}\right)^5\right)^n = \left(\frac{2}{3}\right)^3$$

$$(B) (2^{-10})^{\frac{-3}{5}} = 2^6 = 64$$

$$(C) 5n = 3 \Rightarrow n = \frac{3}{5}$$

$$(D) \left(\frac{n+0.4}{1024}\right)^{-n} = \left(\frac{\frac{3}{5}+0.4}{1024}\right)^{\frac{-3}{5}} = \left(\frac{1}{1024}\right)^{\frac{-3}{5}}$$

$$\text{A. } \left(\frac{32}{243}\right)^n = \frac{8}{27} \Rightarrow \left(\left(\frac{2}{5}\right)^5\right)^n = \left(\frac{2}{3}\right)^3$$

$$\text{B. } (2^{-10})^{\frac{-3}{5}} = 2^6 = 64$$

$$\text{C. } 5n = 3 \Rightarrow n = \frac{3}{5}$$

$$\text{D. } \left(\frac{n + 0.4}{1024}\right)^{-n} = \left(\frac{\frac{3}{5} + 0.4}{1024}\right)^{\frac{-3}{5}} = \left(\frac{1}{1024}\right)^{\frac{-3}{5}}$$

Answer: A



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32. Find the value of $\sqrt{18} + \sqrt{12}$, if $\sqrt{12} = 1.414$ and $\sqrt{3} = 1.732$.

The following are the steps involved in solving the above problem. Arrange that in sequential order.

(A) $4.242 + 3.464 = 7.706$

(B) $3\sqrt{2} + 2\sqrt{3}$

(C) $\sqrt{18} + \sqrt{12} = \sqrt{3^2 \times 2} + \sqrt{2^2 \times 3}$

(D) $3(1.414) + 2(1.732)$

A. CBAD

B. CABD

C. CADB

D. CBDA

Answer: D



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33. $(65.61)^{\frac{1}{8}} = \underline{\hspace{2cm}}$.

A. $\frac{3}{\sqrt[4]{10}}$

B. 0.3

C. 0.03

D. $\frac{3}{\sqrt{10}}$

Answer: A



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Concept Application Level 2

1. Find the value of $\left[\left[\frac{a}{b} \right]^{\sqrt{99} - \sqrt{97}} \right]^{\sqrt{99} + \sqrt{97}}$

A. $\frac{b^2}{a^2}$

B. $\sqrt{\frac{b}{a}}$

C. $\sqrt{\frac{b}{a}}$

D. $\frac{a^2}{b^2}$

Answer: D



Watch Video Solution

2. If $\frac{1}{(243)^x} = (729)^y = 3^3$, then find the value of $5x + 6y$.

A. 33

B. 99

C. 297

D. 0

Answer: D



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$$3. \frac{\left(\frac{1}{x} + y\right)^{(a+b)} \left(\frac{1}{y} - x\right)^{-(p+q)}}{\left(\frac{1}{x} - y\right)^{-(p+q)} \left(x + \frac{1}{y}\right)^{(a+b)}} =$$

A. $\left(\frac{x}{y}\right)^{(a+b) + (p+q)}$

B. $\left(\frac{y}{x}\right)^{(a+b) + (p+q)}$

C. $\left(\frac{y}{x}\right)^{(a+b) - (p+q)}$

D. $\left(\frac{x}{y}\right)^{(a+b) - (p+q)}$

Answer: B



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4. If $7^{(5x-8)} \times 5^{(x+2)} = 30625$, then find x , an integer.

A. 4

B. 3

C. 2

D. 1

Answer: C



Watch Video Solution

5. If $a^x = b^y = c^z$ and $a^3 = b^2c$, then $\frac{3}{x} - \frac{2y}{y} = \text{-----}$

A. $\frac{x}{y}$

B. $\frac{y}{x}$

C. xyz

D. $\frac{1}{z}$

Answer: D

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6. Simplified form of $\frac{\left(p + \frac{1}{q}\right)^{(p-q)} \left(p - \frac{1}{q}\right)^{(p+q)}}{\left(q + \frac{1}{p}\right)^{(p-q)} \left(q - \frac{1}{p}\right)^{(p+q)}} =$

A. $\left(\frac{p}{q}\right)^{2q}$

B. $\left(\frac{q}{p}\right)^{2q}$

C. $\left(\frac{p}{q}\right)^p$

D. $\left(\frac{q}{p}\right)^q$

Answer: A

[Watch Video Solution](#)

7. If $X = a^1 b^2 c^3 \dots z^{26}$ and $Y = z^1 y^2 x^3 \dots a^{26}$ where, $abcd\dots z = 54\sqrt{64}$, then find XY .

A. 6

B. 8

C. 9

D. 7

Answer: B



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8. If $a^b = 256$, then find the maximum possible value of abc , where a , b , and c are positive integers.

A. 12

B. 16

C. 32

D. 256

Answer: D



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9. If $11^x = 3^y = 99^z$, then $\frac{1}{x} + \frac{1}{y} + \frac{1}{z}$

A. $\frac{2}{z} - \frac{1}{y}$

B. $\frac{2}{z} + \frac{1}{y}$

C. $-\frac{1}{y}$

D. 0

Answer: A

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10. If $a^{b^c} = 6561$, then find the least possible value of (a, b, c) , where a, b and c are integers.

A. 24

B. 36

C. 162

D. 18

Answer: D

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11.

If

$$(xy)^{(a-1)} = z, (yz)^{(b-1)} = x \text{ and } (xz)^{(c-1)} = y, \text{ and } xyz$$

is not $-1, 0$ or 1 , then which of the following is equal to

$$ab + bc + ca?$$

A. abc

B. $\frac{abc}{2}$

C. $2abc$

D. $3abc$

Answer: C



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12. If $x^{200} < 3^{300}$, then the greatest possible integral value of x .

A. 3

B. 5

C. 4

D. 2

Answer: B



Watch Video Solution

13. If $5^{n-3} = 625$, then 5^{n+3} is _____.

A. 5^{12}

B. 5^9

C. 5^{10}

D. 5^{15}

Answer: C



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14. Find the value of $(0.00243)^{\frac{3}{5}} + (0.00256)^{\frac{3}{4}}$.

A. 0.083

B. 0.073

C. 0.091

D. 0.081

Answer: C



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15. $\left[\frac{(a^0 + b^0)(a^0 - b^0)}{a^2 - b^2} \right]^{0+5}$ (where $a \neq 0$ and $b \neq 0$) is

A. 0

B. 1

C. -1

D. Not defined

Answer: D



Watch Video Solution

16. If $(1331)^{-x} = (225)^y$ where x and y are integers, then find the value of $3xy$.

A. 0

B. 1

C. -3

D. 3

Answer: A



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17. If $(\sqrt{3})^{x+y} = 9$ and $(\sqrt{2})^{x-y} = 32$, then $2x + y$ is _____.

A. 1

B. 0

C. 17

D. 11

Answer: D

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18. If $6^{x-y} = 36$ and $3^{x+y} = 729$, then find $x^2 - y^2$.

A. 12

B. 4

C. 24

D. 8

Answer: A

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19. If $p^q = 512$ find the minimum possible value of $(p)(q)(r)$, where p, q, r are positive integers.

A. 18

B. 12

C. 24

D. 512

Answer: B



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20. If $2^{x+y} = 128$ and $4^{x-y} = 16$, then find $\frac{x}{y}$.

A. $\frac{2}{3}$

B. $\frac{5}{9}$

C. $\frac{9}{5}$

D. $\frac{3}{5}$

Answer: C



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Concept Application Level 3

1. If $x^{400} < 4^{600}$, then find the greatest possible integral value of x .

A. 6

B. 5

C. 7

D. 4

Answer: C



Watch Video Solution

2. If $2^x = 3^y = 6^z$, then $\frac{1}{x} + \frac{1}{y} + \frac{1}{z} =$

A. $\frac{2}{x}$

B. $\frac{2}{y}$

C. $\frac{2}{z}$

D. 1

Answer: C



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3. Which of the following is the descending order of $(343)^3$, $(2401)^2$ and $(49)^5$?

A. $(49)^5, (343)^3, (2401)^2$

B. $(2401)^2, (343)^3, (49)^5$

C. $(343)^3, (49)^5, (2401)^2$

D. $(49)^5, (2401)^2, (343)^3$

Answer: A



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4. If $x^y = y^z = z^x$ and $zx = y^2$, then which of the following is correct?

A. $z = \frac{2xy}{x + y}$

B. $y = \frac{x - z}{x + z}$

C. $x = \frac{y - z}{yz}$

D. $xyz = \frac{x - z + y}{x + z - y}$

Answer: A



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5. If $a = (2^{-2} - 2^{-3})$, $b = (2^{-3} - 2^{-4})$ and $c = (2^{-4} - 2^{-2})$ then find the value of $a^3 + b^3 + c^3$.

A. $\frac{-9}{1024}$

B. $\frac{-9}{2048}$

C. 0

D. 1

Answer: B



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6. Which is the greatest among 2^{156} , 4^{79} , 128^{23} and 8^{54}

A. 4^{79}

B. 128^{23}

C. 2^{156}

D. 8^{54}

Answer: D



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7. Which is the greatest among $(3)^{198}$, $(27)^{64}$, $(9)^{100}$ and $(81)^{49}$

?

A. $(9)^{100}$

B. $(81)^{49}$

C. $(27)^{64}$

D. 3^{198}

Answer: A



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