MATHS

BOOKS - PEARSON IIT JEE FOUNDATION

INDICES

Example

1. Express the following number in shorter form by expressing as product of a number and a power of 10.

(a) $27,000,000$

(b) $30,000,000,000$

(c) 0.000000043

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2. Express the following number in the standard form :

(a) 7584300

(b) 493.8721

(c) 5.876

(d) 0.0000079

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Very Short Answer Type Questions

1. $\frac{a^m}{a^n} = a^{m/n}(a \neq 0)$

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2. $x^{2009} \times \frac{1}{x^{2008}} = x$

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3. If $a^0 = 1$, then a is any real number.

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4. If $2^x = 4^2$, then $x = 4$.

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5. If $\frac{1}{3^x} = 3^2$, then $x = 2$

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6. $(-1)^{2008} = -1$.

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7. If $x^y = x^2$, then$y = 6$. $(x \neq 0, x \neq 1)$.

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8. If $5^x = 7^x$ then x=2`.

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9. $\left(6^0 - 7^0\right) = 0$

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10. The value of $3\left(x^2 - 3x + 2\right)$ when $x = 2 is 0$.

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11. Power notation of -1331 is _____.

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12. $\frac{1}{x^{-4}} =$ _____

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13. $\left(\frac{2}{3}\right)^{-2} =$ _____.

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14. If $x \times 2^{-5} = 2^5$, then $x =$ ____.

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15. $\left(\frac{3}{5}\right)^3 \left(\frac{25}{27}\right) =$ _____.

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16. $1350 =$ ____ (in power notation)

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17. $\frac{625}{1296} =$ _____ (in power notation)

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18. If $x = 2$ and $y = 4$ then $x^{\frac{y}{x}} + y^{\frac{x}{y}} =$ _____

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19. Radius of the first orbit of hydrogen is $\frac{0.529}{100000000} cm$. Its value by using powers of 10 is _____

A. $0.529 \times 10^{-9} cm$

B. $5.29 \times 10^{-9} cm$

C. $0.0529 \times 10^{-9} cm$

D. $5.29 \times 10^{-10} cm$

Answer: B

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20. Velocity of light is $30,000,000,000 cm/\sec$. Its value by using powers of 10 is _____

A. $3 \times 10^8 cm/s$

B. $3 \times 10^9 cm/s$

C. $3 \times 10^{10} cm/s$

D. $3 \times 10^{11} cm/s$

Answer: C

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21. If $a+b+c=0$, then find the value of $\frac{(x^a)^3}{x^{-3b}x^{-3c}}$

A. 0

B. 1

C. -1

D. 3

Answer: B

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22. If $a = 36$, then find the value of $a^{36^\circ} - a^{0^{36}}$.

A. 36

B. 0

C. 1

D. 35

Answer: D

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23. If $abc = 0$, then find the value of $\frac{\left[(x^a)^b\right]^{2c}}{x^{abc}}$

A. 3

B. 0

C. -1

D. 1

Answer: D

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24. Simplifty $\frac{\sqrt{144} + \sqrt{256}}{3^2 - 2}$

A. 8

B. 4

C. -4

D. -8

Answer: B

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25. $(0.000729)^{\frac{1}{3}} =$ _____

A. 0.030

B. $\sqrt{0.09}$

C. 0.18

D. 0.09

Answer: D

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Short Answer Type Questions

1. Evaluate $(1+3+5+7+9+11+13+15)^{\frac{5}{6}}$.

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2. Identify the greater number between $\left(2^2\right)^3$ and 2^{2^3}.

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3. Simplify $\frac{\left(x^2y^2z\right)^3}{\left(xy^2z\right)^2}$

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4. If $2^x = 240$ then find 2^{x-4}.

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5. If $\left(3x^4\right)^3 = 3^{3^3}$. Then find x (where $x > 0$).

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6. Simplify $\left(x^{a-b}\right)^{a+b} \cdot \left(x^{b-c}\right)^{b+c} \cdot \left(x^{(c-a)}\right)^{(c+a)}$ where $x \neq 0$ and $x \neq 1$.

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7. Solve for $x : (25)^{x+2} = (125)^{2-x}$

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8. Find the value of $3^{2^{4^{0^{7^8}}}} + 8^{3^{2^{0^{4^7}}}}$

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9. Simplify $\left[\frac{2}{5}\right]^4 \left(\frac{25}{8}\right)^3 \left(\frac{125}{4}\right)^2$

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10. If $x = \sqrt{81}$, then find the value of $\frac{x^5 + x^4}{x^3}$

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11. Find the value of $(-1)^0 + (-1)^1 + (-1)^2 + \ldots + (-1)^{100}$.

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12. Arrange $6^{-3}, 5^{-3}, 4^{-3}$, and 3^{-3} in the ascending order.

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13. A teacher wanted to distribute a tatal amount of ₹1296 equally among x number of students. If each student gets x rupees, then find x.

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14. What should be multiplied to 3^{-4} so that product is 6 ?

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15. If $xyz = 0$, then find the value of $\left[(k^x)^y\right]^z - \left[(k^y)^z\right]^x - \left[(k^z)^x\right]^y$

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16. If $9^{2x-7} = (27)^{x-4}$, then find the value of 3^x.

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17. Vicky scored x marks in Maths and Rakesh scored x^3 marks in Maths. The proudct of their marks was 256. Find their marks.

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18. Simplify $\left(3x^{-2}y^{-3}z^{2} \times 5x^{2} \times y \times z^{3}\right) \div x^{3}y^{2}z^{-1}$

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19. If $\frac{1}{(343)^{3y+2}} = 49$,then find the value of y.

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20. Simplify $\left(\frac{125}{216}\right)^{\frac{2}{3}} \times \left(\frac{36}{5}\right)^{+2} \div \left(\frac{25}{6}\right)^{-2}$

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Essay Type Quesitons

1. If $x^{(5+a)^2} \times x^{(5-a)^2} = x^{40}$ then find a^2.

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2. Simplify $\left[\frac{1}{2ab}\right]^c\left[\frac{1}{2bc}\right]^a\left[\frac{1}{2ac}\right]^b$ when $a^2+b^2+c^2=2abc$.

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3. If $3^x=900$,then find 3^{x+2} and 3^{x-2}.

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4. If $1800=2^a\times3^b\times5^c$, then find $a+b+c$.

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5. By what number should we multiply 3^4 so that the product is equal to $\frac{1}{27}$?

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6. By what number should $(8/27)^{-3}$ be a divided to that the quotient is equal to $(27/8)^{-3}$?

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7. Prove that $\frac{(x^{-1}+y^{-1})}{x^{-1}}+\frac{(x^{-1}+y^{-1})}{y^{-1}}=\frac{(x+y)^2}{xy}$

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8. Which is greater between 3^{48} and 2^{72} ?

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9. Find the value of $\frac{k}{1-x^{a-b}}+\frac{k}{1-x^{b-a}}$

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10. Find the least integer value which satisfies $x^4 > 1000$.

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11. If $x^y \times y = 1215$ where $x, y \in 1$ and $y \neq 1$, then find xy.

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12. If $8^{x^y} = 4096$ where x and y are positve integers and $x \neq 1$, then show that either $x = y$ or $x > y$.

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13. If $432 > 2y^3$, then find the greatest possible integer value of y.

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14. If $3^x = 9^y = 27^z = 729$, then show that $x + y + z = 11$.

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15. Which is the least among $(3)^{25}$, $(9)^{12}$, $(27)^3$, and $(81)^2$?

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Concept Application Level 1

1. $2^{3^2} =$ ____

A. 64

B. 32

C. 256

D. 512

Answer: D

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2. $3^{2^{0^5}} =$ _____

A. 0

B. 1

C. 3

D. 9

Answer: C

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3. $200000000 =$ _____

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4. In $2x^5$, base is ____

A. 2

B. 2x

C. x

D. 5

Answer: C

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5. $(2^3)^4 =$ _____

A. $\left(2^{4^3}\right)$

B. $\left(2^{3^4}\right)$

C. $(2^4)^3$

D. None of these

Answer: C

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6. Find the value of $3^4\left[\left(\frac{2}{3}\right)^2+\left(\frac{2}{3}\right)-\left(\frac{2}{3}\right)^3\right]$

A. 86

B. 66

C. 68

D. 88

Answer: B

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7. Value of $\left(\frac{1024}{243}\right)^{\frac{3}{5}}$ is _____

A. $\frac{128}{27}$

B. $\frac{32}{27}$

C. $\frac{64}{27}$

D. $\frac{32}{9}$

Answer: C

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8. Find the value of $\left(2^4 + 2^3\right)^{2/6}$

A. $8(2)^{1/2}$

B. $2(3)^{1/3}$

C. $64(2)^{1/2}$

D. $4(3)^{1/3}$

Answer: B

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9. $\left(25^2 - 15^2\right)^{\frac{3}{2}} = \_\_\_\_$

A. 4000

B. 8000

C. 3125

D. 1024

Answer: B

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10. $\left(33^2 - 31^2\right)^{\frac{5}{7}} = \_\_\_\_$

A. 64

B. 16

C. 32

D. 4

Answer: C

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11. If $abc = 0$ then find the value of $\left[(x^a)^b\right]^c$.

A. 1

B. a

C. b

D. c

Answer: A

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12. If $a + b + c = 0$, then find the value of $\sqrt{x^a . x^b . x^c}$.

A. 0

B. 1

C. -1

D. None of these

Answer: B

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13. Simplify $\frac{\sqrt{36}+\sqrt{64}}{2^3-1}$.

A. 1

B. 2

C. 3

D. 4

Answer: B

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14. If $a = 25$,then find the value of $a^{25^0} + a^{0^{25}}$.

A. 25

B. 26

C. 24

D. 0

Answer: B

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15. Find the value of $(-1)^{301} + (-1)^{302} + (-1)^{303} + \ldots\ldots + (-1)^{400}$.

A. 1

B. 101

C. 100

D. 0

Answer: D

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16. If $3^x = 6561$, then 3^{x-3} is ____

A. 81

B. 243

C. 729

D. 27

Answer: B

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17. The following steps are involved in finding the value $(7+x)^3$, when $(7x)^3 = 343$. Arrange in sequential order.

(A) $(7+x)^3 = (7+1)^3 = 8^3 = 512$

(B) $x^3 = \frac{343}{7^3} = \frac{7^3}{7^3} = 1$

(C) $\Rightarrow x = 1$

(D) $(7x)^3 = \frac{343}{7^3} = \frac{7^3}{7^3} = 1$

A. ABCD

B. DBCA

C. ACBD

D. BDCA

Answer: B

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18. The following steps are involved in finding the value of $\left(\frac{x^a}{x^b}\right)\left(\frac{x^b}{x^c}\right)\left(\frac{x^c}{x^a}\right)$. Arrange them in sequential order.

(A) $x^0 = 1$

(B) $x^{a-b+b-c+c-a}$

(C) $\left(\frac{x^a}{x^b}\right)\left(\frac{x^b}{x^c}\right)\left(\frac{x^c}{x^a}\right) = x^{a-b}.\, x^{b-c}.\, x^{c-a}$

A. CBA

B. ACB

C. BCA

D. CAB

Answer: A

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19. The following steps are involved in finding the value of 3^{n-3}, when $3^n = 729$. Arrange them in seqential order.

(A) $3^{n-3} = 3^{6-3} = 3^3 = 27$

(B) $\Rightarrow n = 6$

(C) $3^n = 729 \Rightarrow 3^n = 3^6$

A. ABC

B. BAC

C. CBA

D. CAB

Answer: C

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20. The following steps are involved in finding the value of $\left(a^{x+y}\right)^{x-y}\left(a^{y+z}\right)^{y-z}\left(a^{z+x}\right)^{z-x}$. Arrange them in sequantial order.

(A) $a^{(x+y)(x-y)}.a^{y+z(y-z)}.a^{(z+x)(z-x)}$

(B) $a^0 = 1$

(C) $a^{x^2-y^2}.a^{y^2-z^2}.a^{z^2-x^2}$

(D) $a^{x^2-y^2+y^2-z^2+z^2-x^2}$

A. ADCB

B. ACBD

C. ACDB

D. ADBC

Answer: C

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Column A		Column B
21. $\left(\frac{2^{10}}{2^{-10}}\right)$	(a)	1
22. 6^{18}	(b)	0
21. 23. If $2^x = 16$. then x	(c)	$\left(6^{10}\right)^8$
24. $5^\circ - 6^\circ$	(d)	2^{20}
	(e)	4
	(f)	$2^{18} \times 3^{18}$

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Column A		Column B
25. 5^5	(a)	6^{12}
26. $6^6 \times 6^6$	(b)	1
22. 27. If $x^3 = 7^3$. then x	(c)	5^5
28. $2^{1^{2^3}}$	(d)	7
	(e)	$\frac{1}{5^5}$
	(f)	2

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Level 2

1. Simplify $4a^{-1}b^{-2}b^{c} \times 6a^{3}b^{2}c \div 12a^{2}b^{4}b.$

A. 2

B. 2abc

C. 2bc

D. $2b^{-1}$

Answer: D

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2. if $3^{-x} = 3000$ then find $10^{3} \times 3^{2x+3}.$

A. 3×10^{-3}

B. 27×10^{-3}

C. 9×10^{-3}

D. 3000

Answer: A

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3. Find the value of $\frac{\left(-\frac{2}{3}\right)^2}{\left(-\frac{2}{3}\right)^3}+\frac{\left(-\frac{4}{9}\right)}{\left(\frac{2}{3}\right)^2}$

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

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

C. $-\frac{5}{2}$

D. $\frac{1}{2}$

Answer: C

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4. If $(4)^{a+5}(16)^{2a}(32)^4 = (16)^{3a}$ then a =___

A. 15

B. 30

C. 24

D. 20

Answer: A

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5. If $2^n = 4096$, then 2^{n-5} is _____

A. 128

B. 64

C. 256

D. 32

Answer: A

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6. If $2^{3y-x} = 16$ and $2^{2y+x} = 2048$, then the value of y is _____

A. 5

B. 8

C. 6

D. 3

Answer: D

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7. If $x^y \times y^x = 72$, then find the sum of x and y where x and y are positive integers $(x \neq 1 \text{ and } y \neq 1)$.

A. 12

B. 10

C. 5

D. 7

Answer: C

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8. $\left(\frac{a^x}{a^y}\right)^z \times \left(\frac{a^y}{a^z}\right)^x \times \left(\frac{a^z}{a^x}\right)^y = \_\_ a \neq 0 \text{ and } a \neq 1$

A. 1

B. 0

C. a^{xyz}

D. $a^{xy+yz+zx}$

Answer: A

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9. Which is the greatest among $(5)^{23}$, $(25)^{11}$, $(625)^{6}$, and $(3125)^{5}$?

A. 5^{23}

B. $(25)^{11}$

C. $(625)^{6}$

D. $(3125)^{5}$

Answer: D

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10. $(0.01024)^{\frac{1}{5}} =$ _____

A. $\sqrt{0.4}$

B. 0.2

C. 0.4

D. $3\sqrt{0.4}$

Answer: C

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11. $\left(\frac{a}{b}\right)^{x+y+z} \div \left[\left(\sqrt{\frac{a}{b}}\right)^{-x} \times \left(\frac{\sqrt{a}}{b}\right)^{-y} \times \left(\sqrt{\frac{a}{b}}\right)^{-z}\right] =$ _____.

A. $\left[a^3/b^3\right]^{x+y+z}$

B. $\left[a^2/b^2\right]^{x+y+z}$

C. $[a/b]^{x+y+z}/2$

D. $[a/b]^3(x+y+z)/2$

Answer: D

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12. If $\frac{1}{(512)^{2x+2}} = 2^{18}$, then find the value of x.

A. -2

B. -3

C. -4

D. -5

Answer: A

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13. If $(2x)^5 = 100000$ then find the value of x.

A. 25

B. 5

C. 10

D. 2.5

Answer: B

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14. If $(x+y)^3 = 1331$ and $(x-y)^5 = 243$, then find $x^2 - y^2$.

A. 33

B. 22

C. 11

D. 44

Answer: A

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15. If $3^{2x-16} = 4^{3x-24}$, then x= _____

A. 9

B. 6

C. 4

D. 8

Answer: D

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16. If $xyz = 0$, then find the value of $(a^x)^{zy} + (a^y)^{zx} + (a^z)^{xy}$.

A. 3

B. 2

C. 1

D. 0

Answer: A

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17. Varun secured x marks in Maths and Rahul secured x^2 marks in Maths. The product of their marks was 729. Find their marks.

A. $3, 243$

B. $9, 81$

C. $27, 27$

D. None of these

Answer: B

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18. What should be multiplied to 2^6 so that the products is 1 ?

A. 16

B. 32

C. 64

D. 128

Answer: C

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19. If $2^{7x-5} = (32)^{x-7}$, then find the value of $\frac{1}{2^x}$

A. 2^{17}

B. 2^{16}

C. 2^{15}

D. None of these

Answer: C

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20. If $x = \sqrt{100}$, then find the value of $\frac{x^3 + x^2}{x}$

A. 120

B. 100

C. 110

D. None of these

Answer: C

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21. Which among 4^{-2}, 3^{-2}, 2^{-2} and 5^{-2} is the greatest?

A. 4^{-2}

B. 3^{-2}

C. 2^{-2}

D. 5^{-2}

Answer: C

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22. A teacher wanted to distribute 2025 chocolates equally among x number of students . If each students gas x chocolates, find x.

A. 25

B. 35

C. 45

D. 55

Answer: C

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Level 3

1. If $\sqrt{2} = 1.414$ and $\sqrt{7} = 2.646$, then find the value of $\sqrt{32} + \sqrt{252.}$

A. 20.839

B. 21.532

C. 19.482

D. 22.231

Answer: B

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2. If $64 > x^3$, then the greatest possible integer value of x is ___

A. 1

B. 2

C. 3

D. 4

Answer: C

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3. Which of the folowing is the ascending order of $2^{1152}, 3^{768}, \text{ and } 5^{384}$

A. $5^{384}, 3^{768}, \text{ and } 2^{1152}$

B. $5^{384}, 2^{1152}, \text{ and } 3^{768}$

C. $5^{389}, 5^{314}, \text{ and } 2^{1152}$

D. $2^{1152}, 3^{768}, \text{ and } 5^{384}$

Answer: B

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4. If $2^a = 4^b = 8^c = 64$,then which of the following relations hod true?

A. $a + b + c = 8$

B. $a + b + c = 9$

C. $a + b + c = 10$

D. $a + b + c = 11$

Answer: D

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5. If $\sqrt{2.5} = 1.581$,then find the value of $\sqrt{0.625}$.

A. 0.7905

B. 0.9426

C. 0.7632

D. 0.9325

Answer: A

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6. $\left(\frac{27}{343}\right)^{\frac{2}{3}} \times \left(\frac{343}{729}\right)^{\frac{2}{3}} \div \left(\frac{2401}{81}\right)^{\frac{3}{4}}$ = _____

A. $1/3 \times (7/3)^8$

B. $1/9 \times (7/3)^7$

C. $1/9 \times (7/3)^6$

D. $(7/3)^6$

Answer: B

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7. If $(9)^{2x+4} = (243)^{2x-3.2}$, then x =_____

A. 12

B. 10

C. 8

D. 4

Answer: D

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8. If $2^{2n-3} = 2048$, then $\left(4n + 3n^2\right) =$ _____.

A. 175

B. 25

C. 125

D. 75

Answer: A

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9. If $7^{a^b} = 2401$ where a and b positive integers and $a \neq 1$, then which of the following is (are). Correct ?

$I, a = b$

$II. a > b$

$III. a < b$

A. Either I and III

B. Either II and III

C. Either I or III

D. I only

Answer: C

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10. IF $\left(a^b\right)^c$=729, $then f \in dthe \min i\mu mpossib \leq valueof$a+b+c` (where a,b and c are positive integers).

A. 29

B. 13

C. 12

D. 10

Answer: D

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11. If $(2)^{2x-2} - (8)^{y-1} = (16)^{x-2.5}$, then find the sum of x and y.

A. 8

B. 7

C. 9

D. 6

Answer: B

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12. $\left(\sqrt{1795} - \sqrt{1170}\right)^{3/4} \times \left(\sqrt{1795} + \sqrt{1170}\right)^{3/4} =$ _____

A. 5

B. 25

C. 125

D. 625

Answer: C

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13. If $a = \left(3^{-3} - 3^3\right)$, and $b = \left(3^3 - 3^{-3}\right)$, then find the value of $\frac{a}{b} - \frac{b}{a}$.

A. 0

B. 1

C. -1

D. 2

Answer: A

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14. Which of the following is the descending order of $(4)^{26}, (64)^9,$ and $(256)^7$?

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15. $\left(\frac{x^{5y-3} \times x^{3-2y}}{x^{4y-6} \times x^{2y-9}}\right)^{-\frac{4}{3}} =$ ------

A. x^{3y+15}

B. x^{13-3y}

C. x^{4y-20}

D. x^{4y+18}

Answer: C

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16. If $(xy)^a = z, (yz)^a = x,$ and $(xz)^a = y,$ then what is the value of a?

(None of x,y and z is either 0 or 1.)

A. 1

B. $\frac{1}{2}$

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

D. 0

Answer: B

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17. $\frac{x^{-1}-y^{-1}}{z}+\frac{y^{-1}-z^{-1}}{x}+\frac{z^{-1}-x^{-1}}{y}=$ _____

A. 1

B. -1

C. 0

D. 2

Answer: C

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18. Find the value of $\frac{1}{1+x^{a-b}}+\frac{1}{1+x^{b-a}}$

A. 0

B. -1

C. 1

D. x^{a+b}

Answer: C

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19. If $x^5 < 1000$, then find the greater integer value of x.

A. 1

B. 2

C. 3

D. 4

Answer: C

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20. If $x^y = y^x$ where x and y are distinct natural numbers , then find $x + y$.

A. 6

B. 8

C. 4

D. 2

Answer: A

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1. If $\left(2x^2 - y^2\right)^4 = 256$ and $\left(x^2 + y^2\right)^5 = 243$, then find $x^4 - y^4$

The following steps are involved in solving the above problem. Arragne then in sequential order.

(A) $\left(x^2 - y^2\right)^4 = 256 = 4^4$ and $\left(x^2 + y^2\right)^5 = 3^5$

(B) $x^4 - y^4 = 12$

(C) $\left(x^2 - y^2\right)\left(x^2 + y^2\right) = 4 \times 3$

(D) $x^2 - y^2 = 4$ and $x^2 + y^2 = 3$

A. ADCD

B. ABCD

C. ADBC

D. ACDB

Answer: A

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2. If $\sqrt{7} = 2.646$, then find the value of $\left(\sqrt{2} + \sqrt{14}\right)^2$ The following steps are involved in solving the above problem.Arrange them in sequential order.

(A) $16 + 2\sqrt{2} \times \sqrt{2} \times \sqrt{7}$

(B)$16 + 2 \times 2x\sqrt{7}$

(C)$\left(\sqrt{2} + \sqrt{14}\right)^2 = 2 + 14 + 2\sqrt{2} \times \sqrt{14}$

(D) $16 + 4 \times 2.646 = 16 + 10.584 = 26.584$

A. ABCD

B. ADBC

C. CADB

D. CABD

Answer: D

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3. $3^4x^3y^6z^4 \times 27x^{-2}z^{-6} \div 81xy^2z^{-3} =$ _____

A. $27xy$

B. $27yz$

C. $27xz$

D. $27xyz$

Answer: B

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4. If $3^x = 243$,then $3^{\frac{x+1}{2}} =$ ____

A. 81

B. 27

C. 243

D. 729

Answer: B

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5. If $5^{-5y} = \frac{1}{3125}$ and $9^{x} = \frac{1}{81}$,then $x - y =$ _____

A. -5

B. -2

C. -3

D. 2

Answer: C

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6. Which is the greatest among the following ?

$\left(\sqrt{3}\right)^{30}, \left(\sqrt{27}\right)^{4}, \left(\sqrt{81}\right)^{8},$ and $\left(3\sqrt{9}\right)^{12}$

A. $\left(\sqrt{3}\right)^{30}$

B. $\left(\sqrt{27}\right)^{4}$

C. $\left(3\sqrt{9}\right)^{6}$

D. $\left(\sqrt{81}\right)^8$

Answer: D

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7. $\left(\frac{a^{x^4}}{a^{y^4}}\right)^{\frac{1}{x^2+y^2}} \times \left(\frac{a^{y^4}}{a^{z^4}}\right)^{\frac{1}{y^2+z^2}} \times \left(\frac{az^4}{a^{x^4}}\right)^{\frac{1}{z^2+z^2}} =$ _____

A. 1

B. 2

C. 3

D. 4

Answer: A

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8. $\left(6\sqrt{\frac{64}{125}}\right)^{-2} =$ _____

A. $\frac{5}{16}$

B. $\frac{4}{5}$

C. $\frac{5}{4}$

D. $\frac{16}{5}$

Answer: C

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9. If $x^y \times y^x = 256$,then find $y^2 - x^2$ where x and y are positive integers and $x < y$).

A. 15

B. 12

C. 14

D. 16

Answer: B

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10. $\left(\sqrt{1024}-\sqrt{24}\right)^{2/3}\left(\sqrt{1024}+\sqrt{24}\right)^{2/3}=$ _____

A. 100

B. 1000

C. 10

D. 10000

Answer: A

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11. Find the value of $\left(8^4+8^2\right)^{\frac{1}{2}}$

A. 84

B. $8\sqrt{77}$

C. 72

D. $8\sqrt{65}$

Answer: D

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Assessment Test Test 2

1.

$(\text{Column A}, , , , \text{Column B}), \left(12.\ 100^{2^{3^{0^{10}}}}, , , (a), 0\right), (13.\ (12^0 - 11^0)(3^1 -$

x^2-Y^2,,,(d),1),(,,,(e),100^2),(,,,(f),16):}`

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Test 2

1. if $(x-y)^3 = 216$ and $(x-y)^5 = 32$, then find $x^3 - y^3$.

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

them in sequential order.

(A) Therefore, $x - y = 6$ and $x + y = 2$.

(B) Solving $x - y = 6$ and $x + y = 2 \Rightarrow x = 4, y = -2$.

(C) $x^3 - y^3 = 64 - (-2)^3 = 64 + 8 = 72$

(D)

$(x - y)^3 = 216 \Rightarrow (x - y)^3 = 6^3 \Rightarrow x - y = 6$ and $(x + y)^5 = 32 \Rightarrow (x$

.

A. DABC

B. DBAC

C. DCBA

D. BDCA

Answer: A

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2. If $\sqrt{2} = 1.414$ and $\sqrt{7} = 2.646$, find the value of $(\sqrt{2} + 1)^2 + (\sqrt{7} + 1)^2$.

The following stpes are involved in solving the above problem. Arrrange them in sequenatial order.

(A) 19.120

(B) $11 + 2 \times 4.060 = 11 + 8 - 120$

(C) $11 + 2\left(\sqrt{2} + \sqrt{7}\right) = 11 + 2(1.414 + 2.646)$

(D) $\left(\sqrt{2} + \sqrt{1}\right)^2 + \left(\sqrt{7} + 1\right)^2 = 2 + 1 + 2\sqrt{2} + 7 + 1 + 2\sqrt{7}.$

A. ABCD

B. DACB

C. DBCA

D. DCBA

Answer: D

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3. $2^3 x^{+2} y^{+3} z^5 \times 5^2 x^{-5} y^{-5} \div 100 x^{-4} y^{-3} z^{-1} =$ _____

A. $2xyz^2$

B. $2xy^2z$

C. $2xyz$

D. $2x^2yz$

Answer: C

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4. If $2^n) = 1024$, then $2^{\frac{n}{2}+2} =$ _____

A. 64

B. 128

C. 256

D. 512

Answer: B

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5. If $2^2y = \frac{1}{4}$ and $3^{4x} = \frac{1}{81}$, then $x + y =$ _____

A. 0

B. -2

C. 1

D. 2

Answer: B

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6. Which is the greatest among $(9)^6$, $(27)^5$, $(81)^4$, and $(243)^2$?

A. $(9)^6$

B. $(27)^5$

C. $(81)^4$ s

D. $(243)^2$

Answer: C

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7. $\left(\frac{a^{x^2}}{a^{y^2}}\right)^{\frac{1}{x+y}} \times \left(\frac{a^{y^2}}{a^{z^2}}\right)^{\frac{1}{y+z}} \times \left(\frac{a^{Z^2}}{a^{x^2}}\right)^{\frac{1}{z+x}} =$ _____

A. 1

B. 2

C. 3

D. 4

Answer: A

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8. $\left(5\sqrt{\frac{3125}{243}}\right)^{-1} =$ _____

A. $-\frac{3}{5}$

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

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

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

Answer: B

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9. If $x^y \times y^x = 800$, then find $x - y$ (where x and y are positive integers and $x > y$).

A. 2

B. 5

C. 4

D. 3

Answer: D

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10. $\left(\sqrt{2013}-\sqrt{2012}\right)^{\frac{3}{5}}\left(\sqrt{2013}-\sqrt{2012}\right)^{\frac{3}{5}}=$ _____

A. 1

B. 2

C. 3

D. 6

Answer: A

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11. Find the value of $\left(3^4+3^5\right)^{3/4}$.

A. 27

B. $27(2)^{3/2}$

C. $2^{3/2}$

D. 729

Answer: B

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12.

Column A	Column B
27. $2^{2^{3^{4^{0^{19}}}}}$	(a) 2
28. $\left(8^0 - 10^0\right)\left(2^1 - 2^2\right)$	(b) 16
29. $(512)^{4/9}$	(c) 256
30. If $3^{x-1} = 3^{6-y} = 27(,)$ then $x^2 + y^2$	(d) 1
	(e) 25
	(f) 1024

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