



CTET & DSSSB TGT



Level-2 Part(B)

SPECIAL CLASS

MATHS

Demo-02

ALGEBRA

(बीजगणित)

Part-02



LIVE 19-03-2024 05:00 PM



CTET JULY 2024



FEATURES

- ▶ Live Classes ✓
- ▶ Mock Test ✓
- ▶ Doubt Group ✓
- ▶ Class Notes PDF ✓
- ▶ Experienced Teachers ✓

बुनियाद 4.0

~~₹ 500/-~~
कूपन → CTET20
₹ 480



▶ Registration Starts from 14th March

▶ Classes Start from 18th March

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TIME TABLE



CTET 2024

बुनियाद 4.0



LEVEL-2
GEOGRAPHY
LIVE 09:00 AM



LEVEL (1&2)
HINDI & PEDTA
LIVE 10:00 AM



LEVEL-1
EVS & PEDTA
LIVE 11:00 AM



LEVEL-2
HISTORY
LIVE 12:00 PM



LEVEL-2
SCIENCE & PEDTA
LIVE 12:00 PM



LEVEL(1&2)
MATHS & PEDTA
LIVE 01:00 PM



LEVEL-2
POLITY & SST PEDTA
LIVE 02:00 PM



LEVEL(1&2)
CDP & PEDTA
LIVE 04:00 PM



LEVEL-2
MATHS
LIVE 05:00 PM



LEVEL(1&2)
ENGLISH & PEDTA
LIVE 07:00 PM



LEVEL(1&2)
SANSKRIT & PEDTA
LIVE 07:00 PM

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Number System

✓ HCF & LCM

✓ Whole Numbers

✓ Negative Numbers and Integers

✓ and Fractions

CTET (LEVEL-2)

Geometry

- ✓ **Basic geometrical ideas (2-D)**
- ✓ **Understanding Elementary Shapes (2-D and 3-D)**
- Symmetry: (reflection)**
- and Construction (using Straight edge Scale protractor, compasses)**

Algebra

- **Basic Concept of Algebra**
- **Ratio & Proportion**
- **and Algebraic Equations**

Arithmetics:

Time & Work ✓

Time & Distance ✓

✓ Profit & Loss, Simple & Compound Interest
and Ratio & Proportion

Mensuration

Sphere

Cylinder

Cone

Triangle

Circle

and Rectangle/Square

1. If $a + b = 5$ and $ab = 3$, then what will be the value of $(a^3 + b^3)$?

$$(a+b)^3 = a^3 + b^3 + 3ab(a+b)$$

$$5^3 = a^3 + b^3 + 3 \times 3 \times 5$$

$$125 - 45 = a^3 + b^3$$

$$80 = a^3 + b^3$$

यदि $a + b = 5$ और $ab = 3$ है, तो $(a^3 + b^3)$ का मान क्या होगा ?

(a) 70

(b) 75

(c) 80

(d) 65

$$(a+b)^3 = 6^3$$

$$a^3 + b^3 + 3ab(a+b) = 216$$

$$a^3 + b^3 + 3 \times \frac{16}{3} \times 6 = 216$$

$$a^3 + b^3 + 96 = 216$$

$$a^3 + b^3 = 216 - 96 = 120$$

2. If $(a + b) = 6$ and $ab = \frac{16}{3}$,

then $(a^3 + b^3)$ is equal to:

यदि $(a + b) = 6$ और $ab = \frac{16}{3}$ है, तो

$(a^3 + b^3)$ बराबर है:

(a) 190

(c) 220

(b) 150

(d) 120

$$(a+b)^3$$

$$(a+b)^3 = 8^3$$

$$a^3 + b^3 + 3ab(a+b) = 512$$

$$a^3 + b^3 + 3 \times \frac{32}{3} \times 8 = 512$$

$$+ 256 = 512$$

$$a^3 + b^3 = 512 - 256$$

3. If $a + b = 8$ and $ab = \frac{32}{3}$, then

$(a^3 + b^3)$ is equal to:

यदि $a + b = 8$ और $ab = \frac{32}{3}$ है, तो

$(a^3 + b^3)$ बराबर है:

(a) 256

(b) 128

(c) 320

(d) 384

$$(a+b)^3 = 2^3$$

$$a^3 + b^3 + 3ab(a+b) = 8$$

$$+218 + 3ab(2) = 8$$

$$6ab = 8 - 218$$

$$6ab = -210$$

$$ab = \frac{-210}{6} \Rightarrow -35$$

4. If $a^3 + b^3 = 218$ and $a + b = 2$,
then the value of ab is

यदि $a^3 + b^3 = 218$ और $a + b = 2$,
तो ab का मान है

(a) 34

(c) -31

(b) -35

(d) 32

$$\underline{x^2} \times \underline{x^5}$$

$$= x^7$$

$$\frac{x^2 + x^3}{x}$$

$$\Rightarrow \frac{x^2}{x} + \frac{x^3}{x}$$

$$\Rightarrow x^{2-1} + x^{3-1}$$

$$x + x^2$$

$$y^5 \times x^4$$
~~$$y^5 \times x^4$$~~

* यदि Base equal है
तो गुणा में घात जुड़ती
है
व
भाग में घात घटती है

$$\frac{x^4 + x^5 + x^6 + x^7}{x^2} = \frac{x^4}{x^2} + \frac{x^5}{x^2} + \frac{x^6}{x^2} + \frac{x^7}{x^2}$$

$$x^2 + x^3 + x^4 + x^5$$

$$\begin{array}{l} 4 + 5 + 6 + 7 \Rightarrow 22 \\ \hline 12 + 15 + 18 + 21 \\ \quad \quad \quad \uparrow \quad \quad \quad \uparrow \\ \quad \quad \quad 3 \quad \quad \quad 3 \end{array} = \frac{66}{3} \Rightarrow 22$$

$$\boxed{x^0 = 1}$$

$$\frac{y^2 + y^3 + y^4 + y^5}{y^2} = ?$$

$$\cancel{y^2} \underbrace{(x^0 + y^1 + y^2 + y^3)}_{\cancel{y^2}}$$

$$\checkmark 1 + y + y^2 + y^3$$

$$x^{-2} \Rightarrow \frac{1}{x^2}$$

$$x^{-5} \Rightarrow \frac{1}{x^5}$$

$$\frac{1}{x^{10}} \Rightarrow x^{-10}$$

$$\frac{1}{y^{-200}} \Rightarrow y^{200}$$

$$\underline{\mathbb{Q}} \rightarrow \underline{x^2 + x^{-2} \Rightarrow 2} \quad \text{ex. 11}$$

$$x^2 + \frac{1}{x^2} = 2$$

$$\boxed{x=1}$$

$$x^{200} + x^{-300} + x^{400} + x^{500}$$

$$1 + \frac{1}{x^{300}} + 1 + 1 = ?$$

$$\textcircled{4} =$$

* यदि $x + \frac{1}{x} = a$

तो $x^2 + \frac{1}{x^2} = \frac{a^2 - 2}{\uparrow}$ ✓

तो $x^3 + \frac{1}{x^3} = a^3 - \underline{3a}$

* यदि $x - \frac{1}{x} = a$

तो $x^2 + \frac{1}{x^2} = a^2 + 2$ ✓

तो $x^3 - \frac{1}{x^3} = a^3 + \underline{3a}$

$$\text{2.14} \quad \left(x + \frac{1}{x}\right)^3 = a^3$$

$$x^3 + \frac{1}{x^3} + 3 \times \cancel{x} \times \cancel{\frac{1}{x}} \left(x + \frac{1}{x}\right) = a^3$$

$$x^3 + \frac{1}{x^3} + 3a = a^3$$

$$x^3 + \frac{1}{x^3} = a^3 - 3a$$

① यदि $x + \frac{1}{x} = 6$ तो $x^2 + \frac{1}{x^2} = ?$
 $6^2 - 2 \Rightarrow 34$ Ans

② यदि $x - \frac{1}{x} = 8$ तो $x^3 - \frac{1}{x^3} = ?$
 $8^3 + 3 \times 8$
 $512 + 24 \Rightarrow 536$

③ यदि $x - \frac{1}{x} = 16$ है तो $x^2 + \frac{1}{x^2} = ?$

$x - \frac{1}{x} = 16$ तो $x^2 + \frac{1}{x^2} = \underline{16^2 + 2}$

$256 + 2$

258

Ans

④ यदि $x + \frac{1}{x} = 4$ तो $x^3 + \frac{1}{x^3} = ?$

$x + \frac{1}{x} = a$

$x^3 + \frac{1}{x^3} = a^3 - 3a$

$4^3 - 3 \times 4$

$64 - 12$

52

$$x + \frac{1}{x} = a$$

$$\boxed{x^2 + \frac{1}{x^2} = a^2 - 2}$$

उदा.

$$x + \frac{1}{x} = 3 \text{ हो तो } x^4 + \frac{1}{x^4} = ?$$

$$x^2 + \frac{1}{x^2} = 3^2 - 2 \Rightarrow 7$$

$$x^4 + \frac{1}{x^4} = 7^2 - 2$$

$$\Rightarrow 47$$

$$\boxed{47}$$

Q यदि $x + \frac{1}{x} = 4$ है तो $x^4 + \frac{1}{x^4} = ?$

$$x^2 + \frac{1}{x^2} = 4^2 - 2 \Rightarrow 14$$

$$x^4 + \frac{1}{x^4} = 14^2 - 2 \Rightarrow 194$$

Ans.

$$a^2 - 4a - 1 = 0$$

$$\frac{a^2 - 1}{a} = \frac{4a}{a}$$

$$a - \frac{1}{a} = 4$$

$$a^2 + \frac{1}{a^2} = 4^2 + 2$$

$$\Rightarrow 18$$

5. If $a^2 - 4a - 1 = 0$, then the value of $a^2 + \frac{1}{a^2} + 3a - \frac{3}{a}$ is-

यदि $a^2 - 4a - 1 = 0$, तो $a^2 + \frac{1}{a^2} + 3a - \frac{3}{a}$ का मान है-

(a) 25

(c) 35

(b) 30

(d) 40

$$a^2 + \frac{1}{a^2} + \left(\frac{3a}{1} - \frac{3}{a} \right)$$

$$a^2 + \frac{1}{a^2} + 3 \left(a - \frac{1}{a} \right)$$

$$18 + 3 \times 4$$

6. If $\frac{x}{a} = \frac{1}{a} - \frac{1}{x}$, then what will be the value of $x - x^2$?

यदि $\frac{x}{a} = \frac{1}{a} - \frac{1}{x}$, हो, तो $x - x^2$ का मान कितना होगा?

(a) $-a$

(b) $\frac{1}{a}$

(c) $-\frac{1}{a}$

(d) a

7. 121 must be added to $121a^2 + 64b^2$ to make a perfect square?

पूर्ण वर्ग बनाने के लिए $121a^2 + 64b^2$ में जोड़ना होगा?

(a) 176 ab

(b) $276a^2b$

(c) 178 ab

(d) $188b^2a$

8. What is the reciprocal of $x + \frac{1}{x}$?

$x + \frac{1}{x}$ का व्युत्क्रम क्या है ?

(a) $\frac{x}{x^2+1}$

(b) $\frac{x}{x+1}$

(c) $x - \frac{1}{x}$

(d) $\frac{1}{x} + x$

H.W.

9. If $x^2 + \frac{1}{x^2} = 66$, then, value of

$$\frac{x^2 - 1 + 2x}{x} = ?$$

यदि $x^2 + \frac{1}{x^2} = 66$, तो, $\frac{x^2 - 1 + 2x}{x}$ का

मान = ?

(a) ± 8

(b) 10, - 6

(c) 6, -10

(d) ± 4

10. If $\frac{5x}{2x^2+5x+1} = \frac{1}{3}$, then what will be the value of $\left(x + \frac{1}{2x}\right)$?

यदि $\frac{5x}{2x^2+5x+1} = \frac{1}{3}$, तो $\left(x + \frac{1}{2x}\right)$ का मान क्या होगा ?

(a) 15

(b) 10

(c) 20

(d) 5

11. If $999x + 888y = 1332$, $888x + 999y = 555$ then what will be the value of $x + y$?

यदि $999x + 888y = 1332$, $888x + 999y = 555$ तो $x + y$ का मान क्या होगा ?

(a) 888

(b) 555

(c) 1

(d) 999

12. If $x^2 + \frac{1}{x^2} = 2$, then tell the value of $x - \frac{1}{x}$.

यदि $x^2 + \frac{1}{x^2} = 2$ हो, तो $x - \frac{1}{x}$ का मान बताइए।

(a) -2

(b) 0

(c) 1

(d) -1

13. If $x + \frac{1}{x} = 5$, then find the value of $\frac{x}{1+x+x^2}$.

यदि $x + \frac{1}{x} = 5$ हो तो, $\frac{x}{1+x+x^2}$ का मान ज्ञात करें।

(a) $\frac{1}{5}$

(b) $\frac{1}{6}$

(c) 5

(d) 6