MAINS SPECIAL BATCH

CGL 2022

Only पढ़ाई

For Serious Students

Class X level

Data

Language

2-3 Concept mix

Expected Changes

① Previous Year Question → 5% [Unique Quesⁿ]

Previous Year Pattern → 70%

New Expected Question → 25%

② Application of Concepts

सबसे ज्यादा Importance

MAINS ORIENTED CONTENT ONLY

ALGEBRA

MAINS SPECIAL

$$\frac{1}{a+2022} = 2022, \quad \frac{1}{a+2023} = ?$$

(a) $\frac{2023}{2022}$ (b) $-\frac{2002}{2023}$

(c) $\frac{2022}{2023}$ (d) $\frac{2021}{2022}$

① $a+2022 = \frac{1}{2022}$

$a+2023 = \frac{1}{2022} + 1$

$= \frac{2023}{2022}$

$\frac{1}{a+2023} = \frac{2022}{2023}$ ③

② $x = \frac{1}{2022}$

$x+1 = \frac{2023}{2022}$ ③

$$f\left(x+\frac{1}{x}+4\right)=x^2+\frac{1}{x^2}+16$$

$f(7)=?$

(a) 17 (b) 25

(c) 23 (d) 47

$x+\frac{1}{x}+4=7$

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

$x^2+\frac{1}{x^2}+16=7+16$

$=23$

©

Ans

Find the square root of

$$(3+\sqrt{5})^3+(3-\sqrt{5})^3 .$$

(a) 9 (b) 12

(c) 14 (d) 6

$2(27+45)$

144

$\sqrt{144}=12$

(B)

Trending Formula

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

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

If ~~18~~6x + ~~3~~y = ~~36~~12, xy = 3 then find the value of $216x^3 + y^3 + 2x^3y^3$.

(a) 1134 (b) 1156

(c) 1206 (d) 1210

$6x+y=12$

$xy=3$

$12^3 = ?? + 18\times3(12)$

1728

648

1080

$1080 + 2\times27$

1134

(A)

??

Creation कैसे हुआ!!

$$\frac{1}{a+1}+\frac{2}{b+1}+\frac{3}{c+1}+\frac{4}{d+1}=x$$

$$\frac{a}{a+1}+\frac{2b}{b+1}+\frac{3c}{c+1}+\frac{4d}{d+1}=4x$$

$1+2+3+4=5x$

$x=2$

$4x^2$

$4\times4=16$ (B)

$a,b,c,d>0$

$4x^2 = ?$

(a) 4 (b) 16

(c) 32 (d) 12

$\frac{a+1}{a+1}+\frac{2(b+1)}{b+1}+\frac{3(1+c)}{c+1}+\frac{4(1+d)}{1+d}=S_4$

Value put

$a + b = 5, a^3 + 15ab + b^3 = ?$

$a, b \neq 0$

(a) 125 (b) 140

(c) 135 (d) 115

$5^3 = a^3 + b^3 + 3ab(5)$

$125 = a^3 + b^3 + 15ab$

(A)

Change

① $a + b = 1.2$

② $a + b = 5$

$\frac{125}{27}$

मामूली Ques.

$a^3 + b^3 + 3.6ab = ??$

1.728

$a^3 + b^3 + 5ab = ??$

$$3x + \frac{1}{2x} = \sqrt{3}\ ,\ 6x^2 + \frac{1}{6x^2} = ?$$

(a) 1 (b) 0

(c) 2 (d) None

$\left(3x+\frac{1}{2x}\right)\left(2x+\frac{1}{3x}\right)$

$6x^2+\frac{1}{6x^2}+1+1=2$

$6x^2+\frac{1}{6x^2}=0$

(B)

$\left(3x+\frac{1}{2x}\right)^2=\left(\frac{2\sqrt{3}}{3}\right)^2$

$3x+\frac{1}{3x}=\frac{2\sqrt{3}}{3}$

$x + \frac{1}{x} = 4$, $x^3 = A + B\sqrt{3}$ then find the value of AB

(a) 390 (b) 430

(c) 333 (d) None

$x - \frac{1}{x} = \sqrt{12}$

$x = 2\sqrt{3}$

$x = \frac{4 \pm 2\sqrt{3}}{2}$

$x = 2 + \sqrt{3}$

$(2+\sqrt{3})^3 = 8 + 3\sqrt{3} + 12\sqrt{3} + 18$

$= 26 + 15\sqrt{3}$

(A) $26 \times 15 = 390$

If $3^x = 4^y = 12^{-z}$ then find the value of $(x^{-3} + y^{-3} + z^{-3})$

(a) $3xy^{-1}z^{-1}$ (b) $3x^{-1}y^{-1}z^{-1}$

(c) $x^{-1}y^{-1}z^{-1}$ (d) $3x^{-3}y^{-3}z^{3}$

$3^x = k$

$3 = k^{\frac{1}{x}}$

$4 = k^{\frac{1}{y}}$

$12 = k^{-\frac{1}{z}}$

$k^{\frac{1}{x}+\frac{1}{y}} = k^{\frac{1}{z}}$

$\frac{1}{x}+\frac{1}{y}+\frac{1}{z}=0$

One step.

Attention Seeker

$\frac{1}{x}+\frac{1}{y}+\frac{1}{z}=0$

$\frac{1}{x^3}+\frac{1}{y^3}+\frac{1}{z^3}=\frac{3}{xyz}$

(B)

$\frac{1}{x}+\frac{1}{y}=-\frac{1}{z}$

$x^3 + y^3 = 3xyz + 8, x + y + z = 0$

$xz + yz = ?$

(a) 2 (b) 4

~~(c) −4~~ (d) 1

$x+y+z=0$

$x^3+y^3-8=3xyz$

$z^3=-8$

$z=-2$

$z(x+y)$

$-z^2$

$=-4$ Ans (c)

$$\frac{4}{4x+\frac{7}{x}-8}+\frac{3}{4x+\frac{7}{x}-10}=1$$

$$\frac{4x}{4x^2-8x+7}+\frac{3x}{4x^2-10x+7}=1$$

$4x+\frac{7}{x}$ could be

$$\frac{4}{\eta-8}+\frac{3}{\eta-10}=1$$

(a) 9 ✓

(b) 7

(c) 6

(d) 5

option

$4-3=1$ (A) ✓

$$\frac{1}{x+y+z} = \frac{1}{x} + \frac{1}{y} + \frac{1}{z}$$ then $x^3 + y^3 + z^3 =$?

B

(a) $3xyz$ (b) $(x+y+z)^3$

(c) $-3xyz$ (d) $-(x+y+z)^3$

$xyz = (xy+zx+yz) \times \frac{x}{(x+y+z)}$

$x^3+y^3+z^3-3xyz = (x+y+z)\left((x+y+z)^2 - 3(xy+yz+zx)\right)$

$= (x+y+z)^3 - 3(x+y+z)(xy+yz+zx)$

$-3xyz$

$a + b = 1, a^2 + b^2 = 2, a^8 + b^8 = ?$

(a) $\frac{7}{2}$ (b) $\frac{97}{8}$

(c) $\frac{87}{8}$ (d) $\frac{15}{8}$

$ab = -\frac{1}{2}$

$a^4 + b^4 = 4 - 2\left(\frac{1}{4}\right)$

$= \frac{7}{2}$

$a^8 + b^8 = \frac{49}{4} - 2\left(\frac{1}{16}\right)$

$= \frac{97}{8}$ (B)

महनत करने वाला Ques.

$$x^2 + x + 1 = 0$$

$$\left(x+\frac{1}{x}\right)^2+\left(x^2+\frac{1}{x^2}\right)^2+\left(x^3+\frac{1}{x^3}\right)^2+\ldots\left(x^{27}+\frac{1}{x^{27}}\right)^2$$

$=?$

$x+\frac{1}{x}=-1$ → 9 terms

$x^2+\frac{1}{x^2}=-1$ → 9 terms

$x^3+\frac{1}{x^3}=-1+3=2$ → 9 terms

(a) 54 (b) 36

(c) 18 (d) 45

1, 2,

$(-1)^2 \times 9$

$(-1)^2 \times 9$

$2^2 \times 9$

54 Ans

$x^2 + xy = 28, y^2 + xy = 21, xy = ?$

(a) 12 (b) 10

(c) 20 (d) −12

काम करने वाले Ques

$(x+y)^2 = 49$

$x+y = 7$

$x^2 - y^2 = 7$

$(x+y)(x-y) = 7$

$7 \quad 1$

$x+y = 7$

$x-y = 1$

$4 \times 3 = 12$

(A)

$x^2 = 17x+y,\ y^2 = x+17y,\ x \neq y$

$\sqrt{x^2+y^2+1} = ?$

(a) 13 (b) 26

(c) 17 (d) 19

$x^2+y^2 = 18(x+y)$

$x^2-y^2 = 16(x-y)$

$(x-y)(x+y) = 16(x-y)$

$\sqrt{18\times16+1}$

$\sqrt{289} = 17$ (C)

Add Sub.

Find the coefficient of xy^{-4} in the expression $\left(\sqrt{3}y^{-2}+2x\right)^3$

(a) 18

(b) 16

(c) $18\sqrt{3}$

(d) $16\sqrt{3}$

गुणा

$x \times (y^{-2})^2$

A

3x3x2

If $(4x + 3y)^3 - (4x - 3y)^3 = my^3 + 288x^2y$, then m = ?

(a) 16 (b) 13

(c) 54 (d) 42

① $2(b^3 + 3ba^2)$

$2(27y^3 + 144x^2y)$

$54y^3 + 288x^2y$

C

② केवल y^3

$2(27y^3)$

54

③ $x = 0$

$y = 1$

$54 = m$

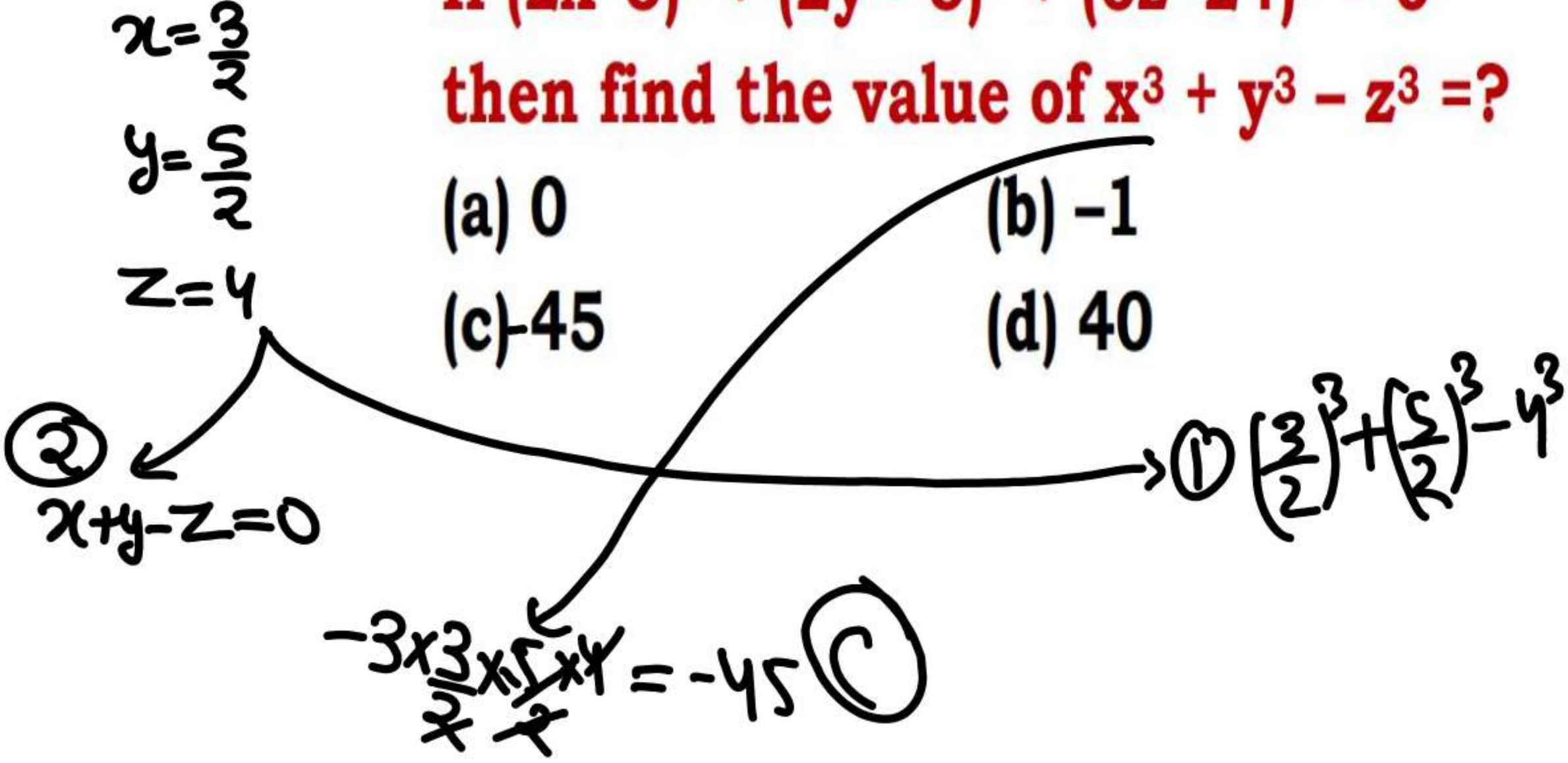
C

Coefficient को इस तरह से पूछ रहा है

If $(2x-3)^2 + (2y - 5)^2 + (6z-24)^2 = 0$ then find the value of $x^3 + y^3 - z^3$ =?

(a) 0 (b) −1

(c) −45 (d) 40



If $(2x^2 + 10) + (3y^2 + 3) + (4z^2 + 1) = -2(\sqrt{2}x + 2\sqrt{3}y + 6z)$ then the value of $z^2 - x^2 - y^2$ = ? (approx.)

(a) 0.41 (b) .42
(c) 0.43 (d) 0.44

$\sqrt{2}x = -1$

$\sqrt{3}y = -2$

$2z = -3$

$\frac{9}{4} - \frac{1}{2} - \frac{4}{3} = \frac{5}{12}$ (B)

$\frac{1}{12} = 8\frac{1}{3}\%$

$\frac{5}{12} = 41\frac{2}{3}\%$

.4166

If $a - b + c = \sqrt{6}$ and $a^3 + 3abc = b^3 - c^3$ find the value of $a(a+b)+b(b+c) + c(c-a) = ?$

(a) 0
(b) 1
(c) −1
(d) None

$a-b+c=\sqrt{6}$

$a^3+c^3-b^3=-3abc$

$a-b+c \neq 0$

$a^3-b^3+c^3+3abc = (a-b+c)(a(a+b)+b(b+c)+c(c-a)]$

$0 \times = 0$

A

साधारण Question Basic पर

$a^3+b^3+c^3-3abc = (a+b+c)(a(a-b)+$

$b(b-c)+(c-a)$

0

0

0

$a=b=c$

$a^3-b^3+c^3+3abc = (a-b+c)($ $a(a+b)+b(b+c)$

$+c(c-a)$]

0

0

0

$b(b-c)$

$-b(-b-c) = b(b+c)$

X

✓

If $x - x^{-1} = x^0$ then find the value of

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

(a) 4 (b) $2\sqrt{5}$

(c) 2 (d) None of these

$x - \frac{1}{x} = 1$

$x + \frac{1}{x} = \sqrt{5}$

$x = \frac{\sqrt{5}+1}{2}$

$\frac{1}{x} = \frac{\sqrt{5}-1}{2}$

$\frac{6+2\sqrt{5}}{4} - \left(\frac{\sqrt{5}-1}{2}\right)$

$= \frac{6+2}{4} = \frac{2}{2}$ (c)

If $x^4 (x - 4) = x^3$ then find the value of

$$\frac{(x^6 + 1)}{(x^4 + \sqrt{5}x^3 + x^2)} = ?$$

(a) $\frac{34}{3}$ (b) $\frac{31}{3}$

(c) $\frac{34}{5}$ (d) None

$x(x-4)=1$

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

$x + \frac{1}{x} = 2\sqrt{5}$

$\div x^3$

$$\frac{x^3 + \frac{1}{x^3}}{x + \frac{1}{x} + \sqrt{5}} = \frac{2\sqrt{5}(17)}{3\sqrt{5}} = \frac{34}{3}$$ (A)

$n^3 - 3n$

$n(n^2 - 3)$

$y^2 = xz$

If $z = y^2 x^{-1}$, $x + y + z = 8$ and $x^2 + y^2 + z^2 = 16$ then find the value of y^2 = ? y^2

$8^2 = 16 + 2(xy + yz + zx)$

$3^{48} = xy(8)$

$y = 3$

$y^2 = 9$

(a) 24 (b) 16

(c) 17 (d) 9

(1)

Important

ये लगभग 5 exam में

$y^2 = xz$

$x^{-1}z^{-1} = y^{-2}$

$\sqrt{2}x = \sqrt{2-\sqrt{3}}$ and $\sqrt{2}y = \sqrt{2+\sqrt{3}}$ find the value of (x^3+y^3) of $\frac{2}{3}$

$x = \frac{\sqrt{3}-1}{2}$

$y = \frac{\sqrt{3}+1}{2}$

$xy = \frac{1}{2}$

$x+y = \sqrt{3}$

$(\sqrt{3})^3 = ?? + 3(\sqrt{3})$

$?? = \frac{3\sqrt{3}}{2}$

(a) $\frac{\sqrt{3}}{2}$ (b) $\frac{1}{2}$

(c) $\sqrt{3}$ (d) $\sqrt{2}$

$\sqrt{2-\sqrt{3}} = \frac{\sqrt{3}-1}{\sqrt{2}}$

$\frac{\sqrt{3}}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{3}}{2}$

If $a^2 + b^2 - ab\sqrt{2} = 5.25$, $a^4 + b^4 = \frac{273}{16}$ then find the value of $\frac{1}{(a-b)^{-2}} = ?$

$a^2+b^2+ab\sqrt{2} = \frac{273}{16} \div \frac{21}{4}$

$= 5\frac{1}{4} = \frac{21}{4}$

$a^2+b^2 = \frac{17}{4}$

$ab\sqrt{2} = -1$

$\rightarrow 2ab = -\sqrt{2}$

$\frac{17}{4} + \sqrt{2}$

$4.25 + 1.4 = 5.65$

$\sqrt{2} = 1.4$

(a) 6.55 (b) 5.65

(c) 5.29 (d) 5.45

$(a-b)^2 = a^2+b^2-2ab$

① Decimal Q. Any

(B) $a^4+b^4 = (a^2+b^2-ab\sqrt{2})(a^2+b^2+ab\sqrt{2})$

If $x^2(x^2 - \sqrt{7}) = -1$ and

$x^6(x^6 - A\sqrt{B}) = -1$ then find the value of $A + B = ?$

(a) 28 (b) 11

(c) $4 + \sqrt{7}$ (d) $\sqrt{7} + 7$

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

$x^6 + \frac{1}{x^6} = A\sqrt{B}$

$\frac{7\sqrt{7} - 3\sqrt{7}}{4\sqrt{7}}$

A B

4 + 7 = 11

(B)

$$\frac{(A^3x^3 - B^3y^3)}{(16x^2 + ABxy + 25y^2)} = (Ax - By)$$ then

the value of $(A + B)^2$ =?

(a) 64 (b) 81

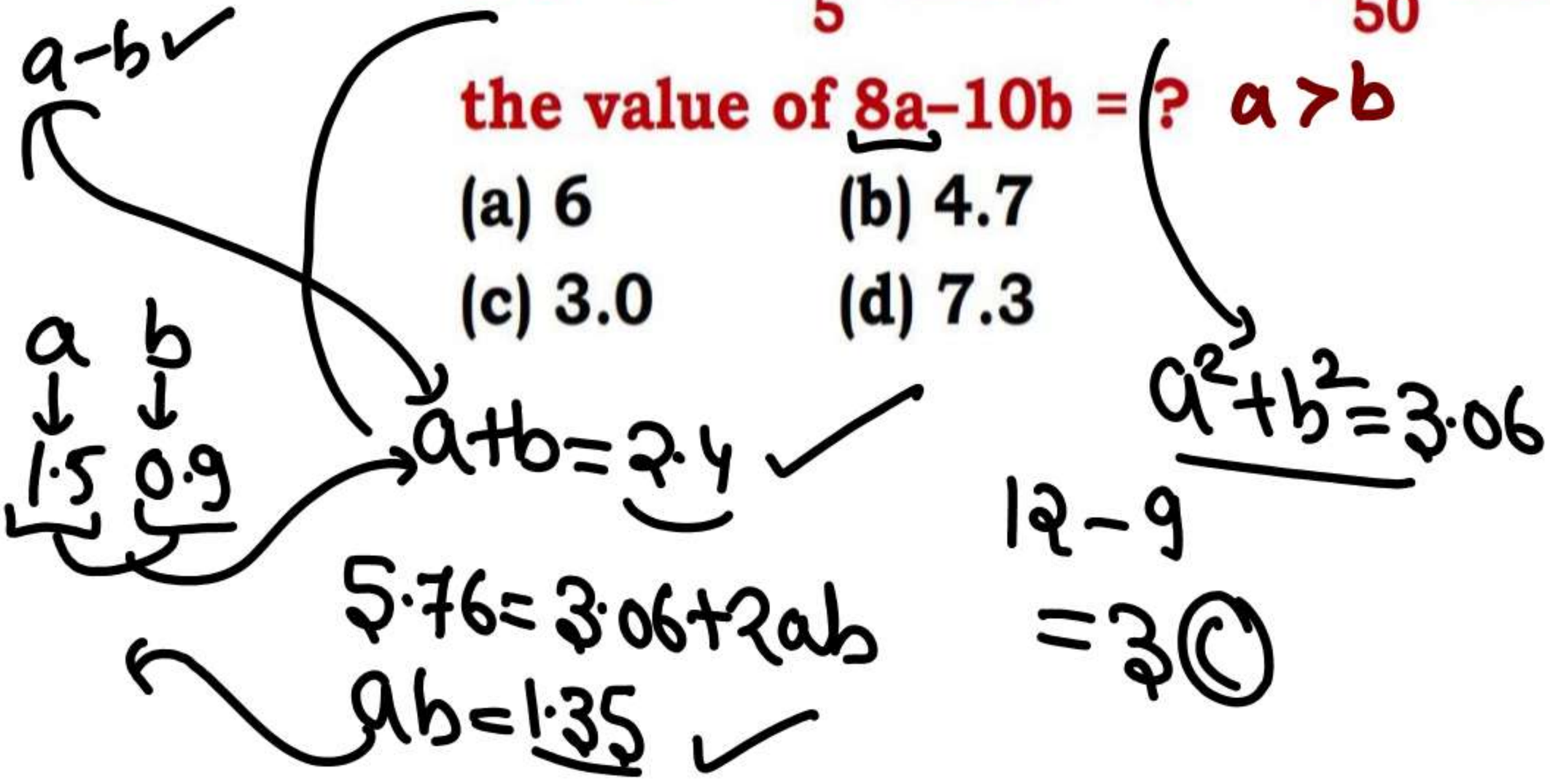
(c) 36 (d) None

Simple Ques

If $a + b = 2\frac{2}{5}$ and $a^2 + b^2 = 3\frac{3}{50}$ then the value of $8a - 10b$ = ? $a > b$

(a) 6 (b) 4.7

(c) 3.0 (d) 7.3



If $x^2(x^2+1) = 728$ and $x^2 - x + 1 = 9$ then find the value of 3.33% of (x^2+1).

(a) $\frac{4}{5}$

(b) $\frac{4}{3}$

(c) $\frac{3}{2}$

(d) $\frac{2}{3}$

$x^4+x^2=728$

$x^4+x^2+1=729$

Interesting Ques

$(x^4+x^2+1)=(x^2+x+1)(x^2-x+1)$

729 = 81 × 9

Y/N ✓

$\frac{81+9}{2} \times \frac{1}{30} = \frac{3}{2}$

(c)

If $(3x+2y)^3-(2x+3y)^3 = M(x^3-y^3) + Nxy(x-y)$ then find the value of $(M-N) = ?$

(a) 1 (b) 7

(c) 4 (d) 8

$27x^3+8y^3+18xy(3x+2y) - 8x^3-27y^3-18xy(2x+3y)$

$19(x^3-y^3)+18xy(x-y)$

M N

(A)