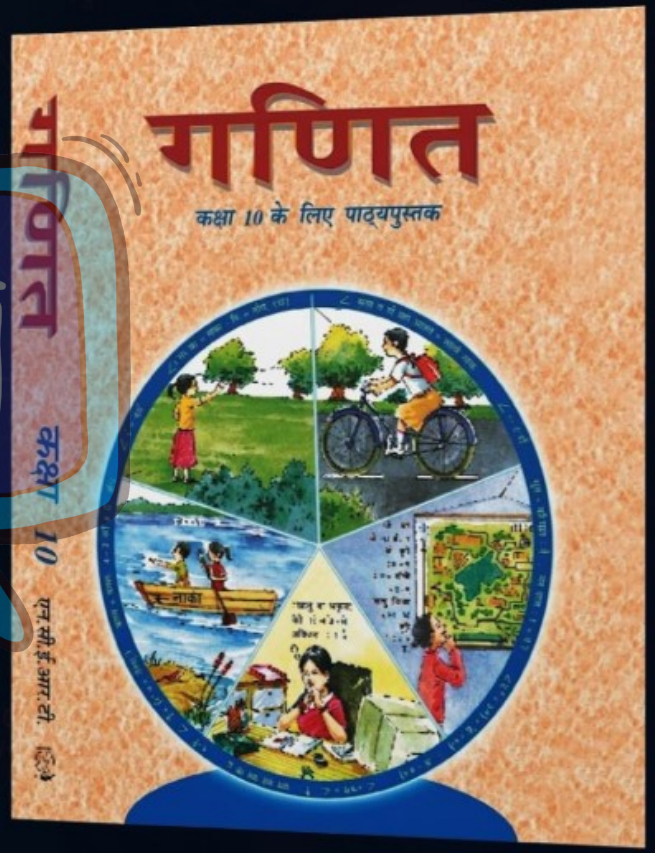
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Basic Formulas

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

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

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

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

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

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

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

$(a+b+c)^2 = a^2+b^2+c^2+2(ab+bc+ca)$

संख्याएँ (Numbers)

1. प्राकृत संख्याएँ (N) :- 1, 2, 3, 4, ...
2. पूर्ण संख्याएँ (W) :- 0, 1, 2, 3, ...
3. पूर्णांक (I or Z) :- ..., -3, -2, -1, 0, 1, 2, 3, ...
4. परिमेय संख्याएँ :- इस प्रकार की संख्याएँ जिन्हें $\frac{p}{q}$ के रूप में लिखा जा सके जहाँ p और q पूर्णांक संख्याएँ हैं, परिमेय संख्याएँ कहलाती हैं।

   उदा. $\frac{5}{7}, \frac{-3}{2}, 0, \frac{22}{7}$

5. अपरिमेय संख्याएँ :- जिन्हें $\frac{p}{q}$ के रूप में नहीं लिखा जा सकता जहाँ $p, q \in Z$

   उदा. $\pi, \sqrt{2}, \sqrt{3}$.

*ध्यान दें - $\sqrt{\text{अभाज्य संख्या}}$ सदैव अपरिमेय होता है।

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1. वास्तविक संख्याएँ
2. बहुपद
3. दो चर वाले रैखिक समीकरण युग्म
4. द्विघात समीकरण
5. समांतर श्रेढियां
6. त्रिभुज
7. निर्देशांक ज्यामिति

6-7

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8. त्रिकोणमिति का परिचय
9. त्रिकोणमिति के कुछ अनुप्रयोग
10. वृत्त
11. वृत्तों से संबंधित क्षेत्रफल
12. पृष्ठीय क्षेत्रफल और आयतन
13. सांख्यिकी
14. प्रायिकता

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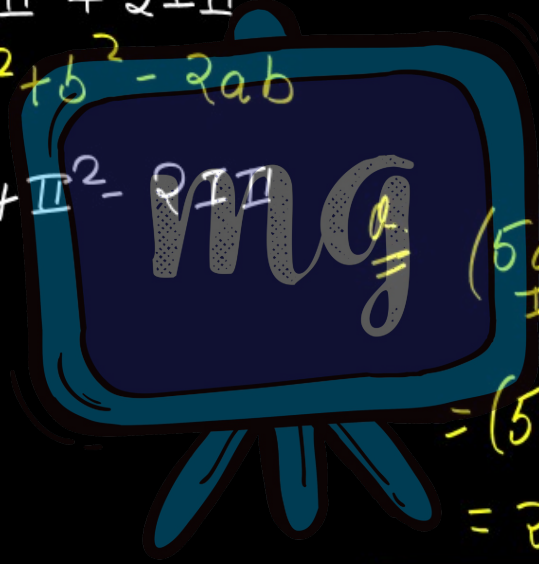
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$(a+b)^2 = a^2+b^2+2ab$

$(I+II)^2 = I^2+II^2+2I\,II$

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

$(I-II)^2 = I^2+II^2-2I\,II$



Q. $(3a+\sqrt{b})^2$

$= (3a)^2+(\sqrt{b})^2+2\times 3a\times\sqrt{b}$

$= 9a^2+b+6a\sqrt{b}$

Q. $(\underset{I}{5a}-\underset{II}{7b})^2$

$= (5a)^2+(7b)^2-2(5a)(7b)$

$= 25a^2+49b^2-70ab$

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1 to 20 Squ.

1 to 20 Table

$(\sqrt{b})^2$

$(b^{\frac{1}{2}})^2$

$b^{\frac{1}{2} \times 2} = b$



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

$$(I+II)(I-II) = I^2 - II^2$$

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

$$= 4b^2 - a^2$$

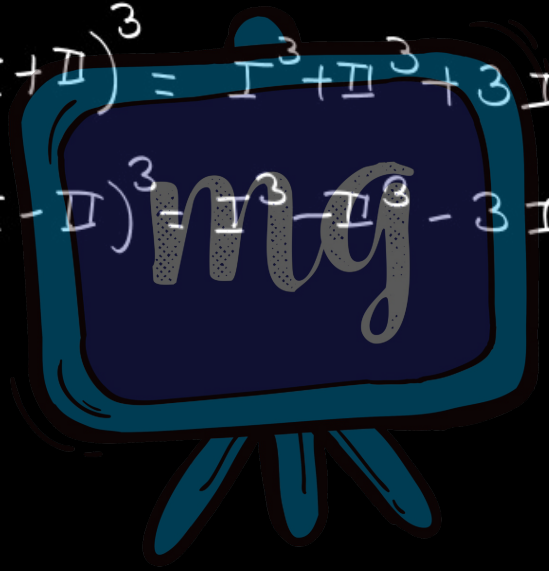
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$$(a+b)^3 = a^3+b^3+3ab(a+b)$$

$$(\text{I}+\text{II})^3 = \text{I}^3+\text{II}^3+3\,\text{I}\,\text{II}(\text{I}+\text{II})$$

$$(\text{I}-\text{II})^3 = \text{I}^3-\text{II}^3-3\,\text{I}\,\text{II}(\text{I}-\text{II})$$



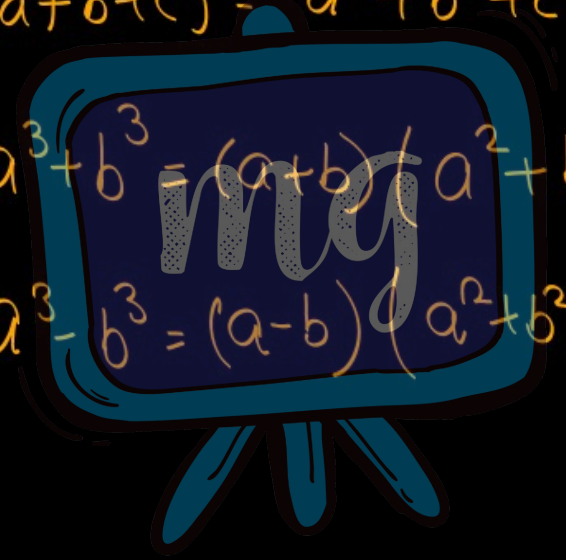
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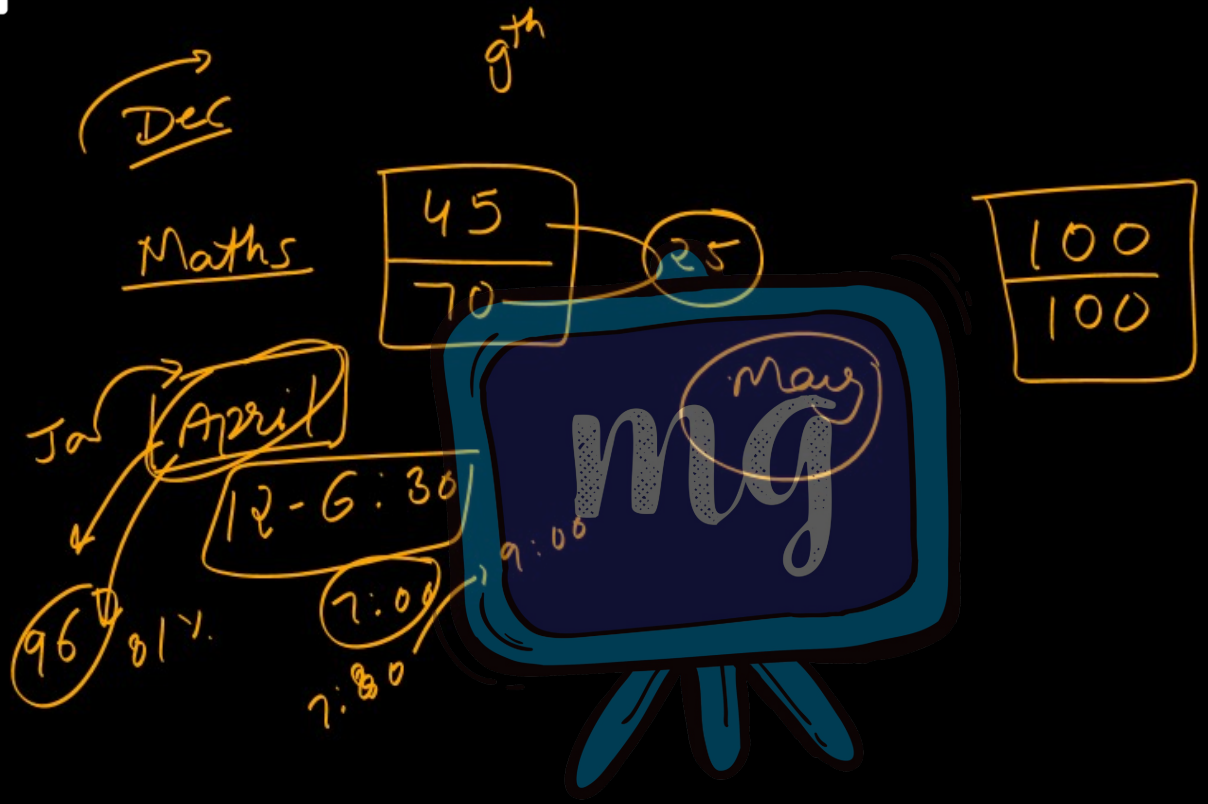
$$(a+b+c)^2 = a^2+b^2+c^2+2(ab+bc+ca)$$

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

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



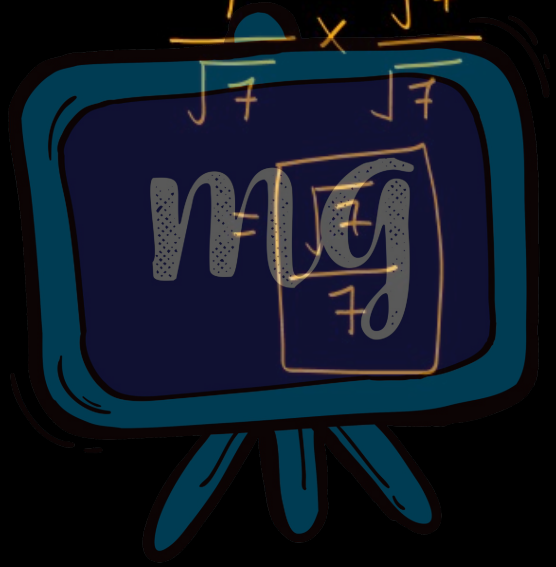
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परिमेय करण

$$\frac{1}{\sqrt{7}} \times \frac{\sqrt{7}}{\sqrt{7}}$$



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$$\frac{2}{\sqrt{3}+2} \times \frac{\sqrt{3}-2}{\sqrt{3}-2} = \frac{2(\sqrt{3}-2)}{(\sqrt{3})^2-(2)^2}$$

(I + II) (I − II)

$I^2 - II^2$

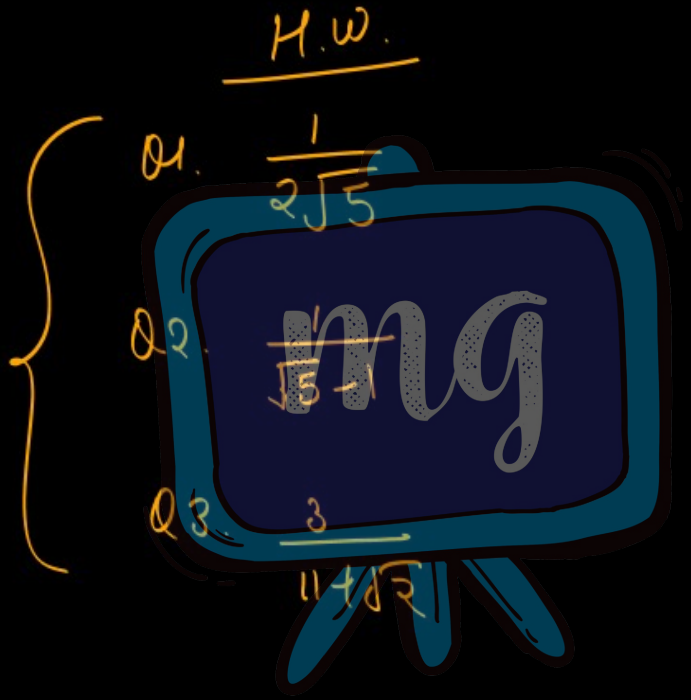
$$= \frac{2(\sqrt{3}-2)}{3-4}$$

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

$$= -2(\sqrt{3}-2)$$

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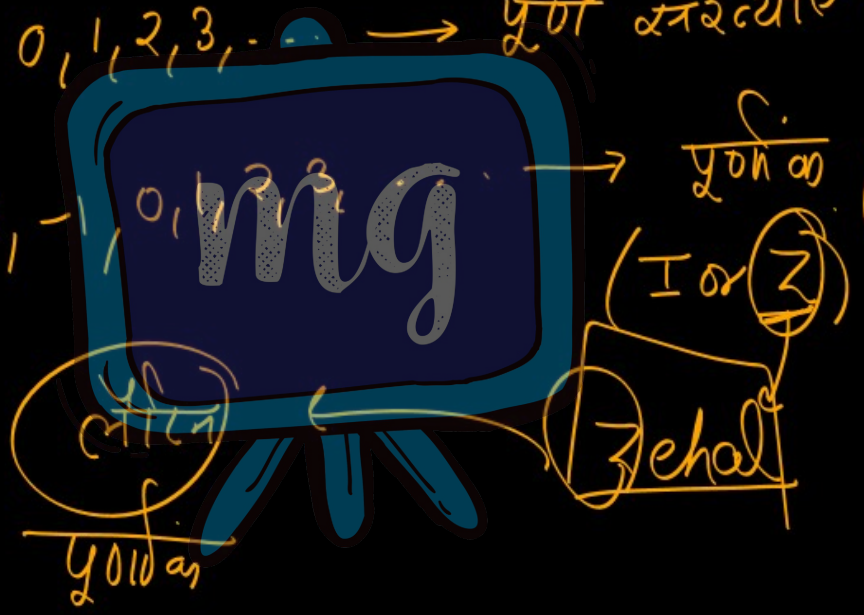


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1, 2, 3, ... → प्राकृत संख्याएँ (N)

0, 1, 2, 3, ... → पूर्ण संख्याएँ (W)

..., -3, -2, -1, 0, 1, 2, 3, ... → पूर्णांक (Integer)



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अभाज्य संख्याएँ

4 → 2×2

↳ भाज्य

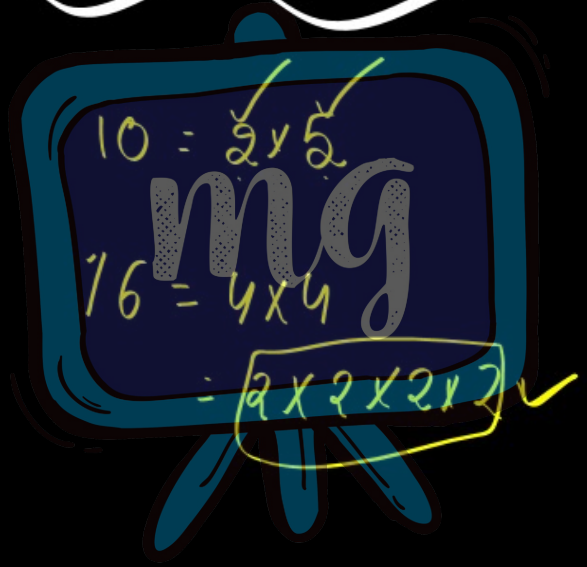
इस प्रकार की संख्याएँ जिसमें स्वयं और 1 के अलावा किसी अन्य संख्या का भाग न जाए।

2, 3, 5, 7, 11, 13, 17, 19, 23, 29

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૩-ના ઘાત્ય ગુણનવંડ



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2	160
2	80
2	40
2	20
2	10
5	5
	1

$160 = 2 \times 2 \times 2 \times 2 \times 2 \times 5$

$160 = 2^5 \times 5$

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