Under CSR Support by ipca | Foundation

missiongyan

ARJUN BATCH

CLASS 9th MATHS

संख्या पद्धति

NUMBER SYSTEM

Chapter-1 | Part-4



Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

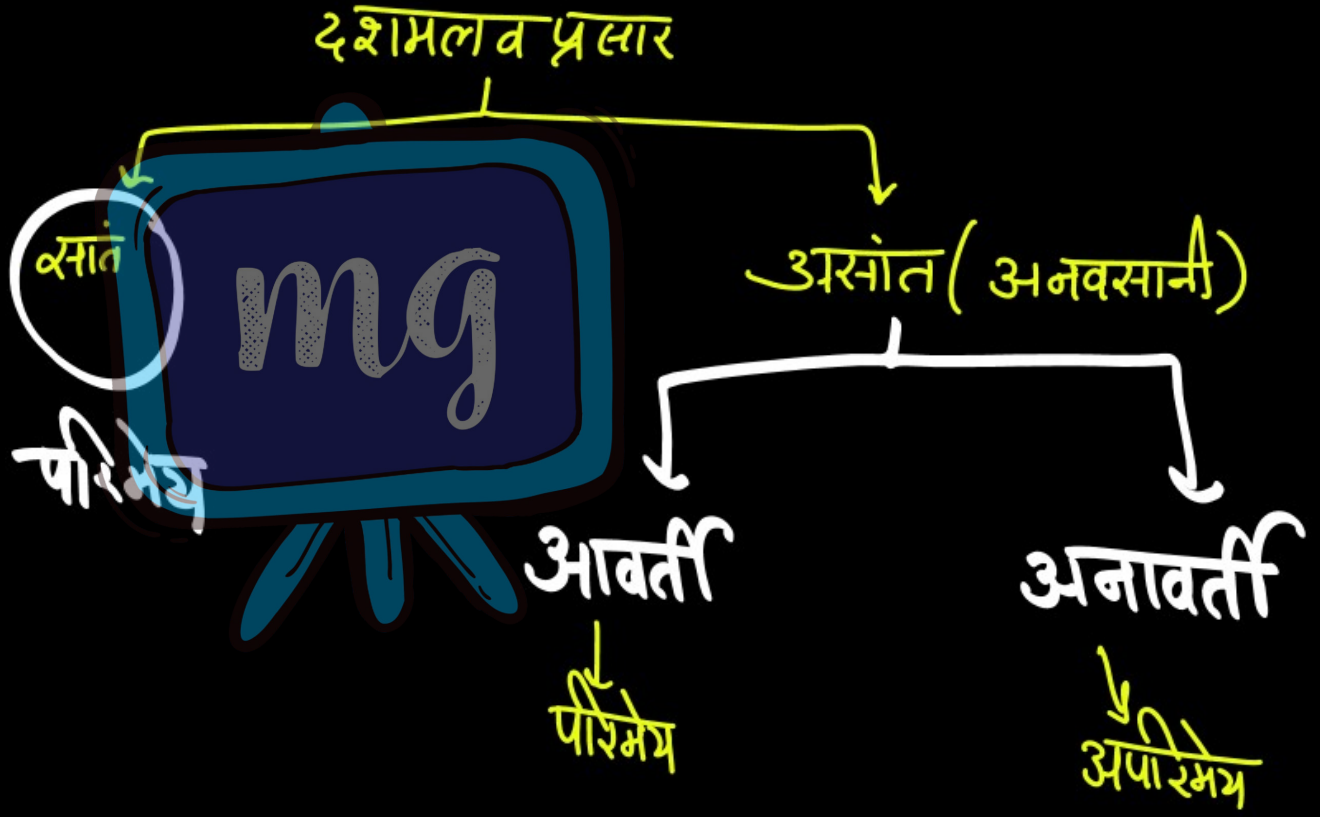
आज क्या पढेंगे ?

1. वास्तविक संख्याओं पर संक्रियाएँ
2. प्रश्नावली - 1.4



Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

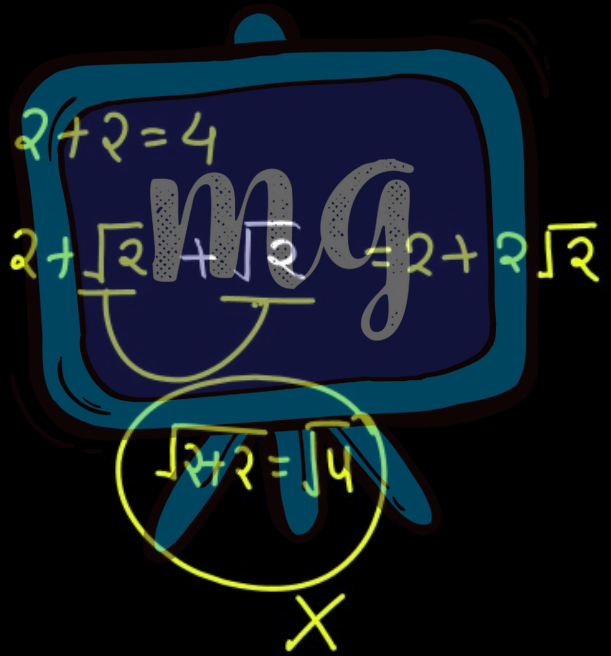


Under CSR Support by
ipca | Foundation

वास्तविक संख्याओं पर संक्रियाएँ

missiongyan
LET'S LEARN TOGETHER

जोड़ / घटाव / गुणा / भाग



Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

$\sqrt{5} + \sqrt{5} = 2\sqrt{5}$

$3\sqrt{6} - 4\sqrt{6}$

$(\sqrt{6} + \sqrt{6} + \sqrt{6}) - (\sqrt{6} + \sqrt{6} + \sqrt{6} + \sqrt{6}) = -\sqrt{6}$

$\sqrt{6} + \sqrt{3}$ ✗

$2\sqrt{3} + \sqrt{3} = 3\sqrt{3}$

Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

Q. $(5+\sqrt{24})-(3+2\sqrt{6})$

Sol. $5+\sqrt{6\times4}-3-2\sqrt{6}$

$2+2\sqrt{6}-2\sqrt{6}$

$=2$

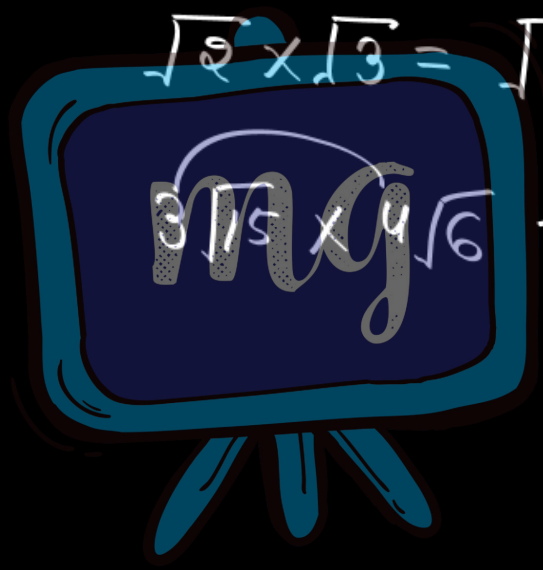
Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

$\sqrt{a} \times \sqrt{b} = \sqrt{ab}$

$\sqrt{9} = 3$

$\sqrt{2} \times \sqrt{3} = \sqrt{2 \times 3} = \sqrt{6}$



$3\sqrt{5} \times 4\sqrt{6} = 12\sqrt{5 \times 6}$

$= 12\sqrt{30}$

$= 12\sqrt{9 \times 10}$

$= 12 \times 3\sqrt{10}$

$= 36\sqrt{10}$

Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

$\sqrt{a} \times \sqrt{a} = a$

$\sqrt{\ }$ → Power $\frac{1}{2}$

$\sqrt{a} \times \sqrt{a}$

$(\sqrt{a})^2$

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

Q. $\sqrt{5}(3\sqrt{5} - 4\sqrt{3})$

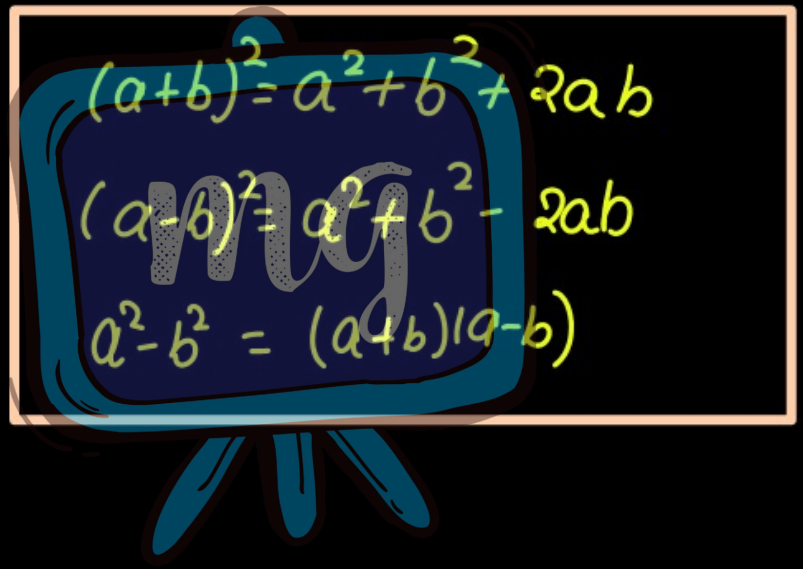
हल :- $\sqrt{5} \times 3\sqrt{5} - 4\sqrt{3}\sqrt{5}$

$5 \times 3 - 4\sqrt{15}$

$15 - 4\sqrt{15}$

Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER



Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

$(3\sqrt{2})^2$

9×2

$= 18$

Q. $(\sqrt{5} - 3\sqrt{2})^2$

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

$= (\sqrt{5})^2 + (3\sqrt{2})^2 - 2 \times \sqrt{5} \times 3\sqrt{2}$

$= 5 + 18 - 6\sqrt{10}$

$= 23 - 6\sqrt{10}$

Under CSR Support by ipca | Foundation

missiongyan LET'S LEARN TOGETHER

$7+\underline{4\times3}-4\sqrt{3}$

$19-4\sqrt{3}$

अपरिमेय

Q1. क्या $(\sqrt{3}+2\sqrt{3})^2$ एक अपरिमेय संख्या है?

$(3\sqrt{3})^2 = 9\times3 = 27$

नहीं

अपरिमेय संख्या नहीं है।

Q2. क्या $(\sqrt{7}-2\sqrt{3})^2$ एक परिमेय संख्या है?

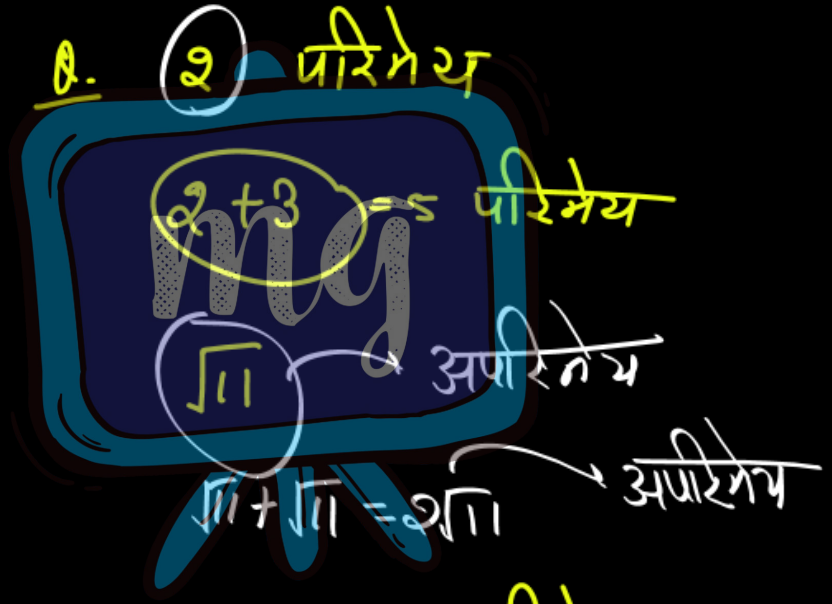
हल :- $(a-b)^2 = a^2+b^2-2ab$

$= (\sqrt{7})^2+(2\sqrt{3})^2-2\times\sqrt{7}\times2\sqrt{3}$

Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

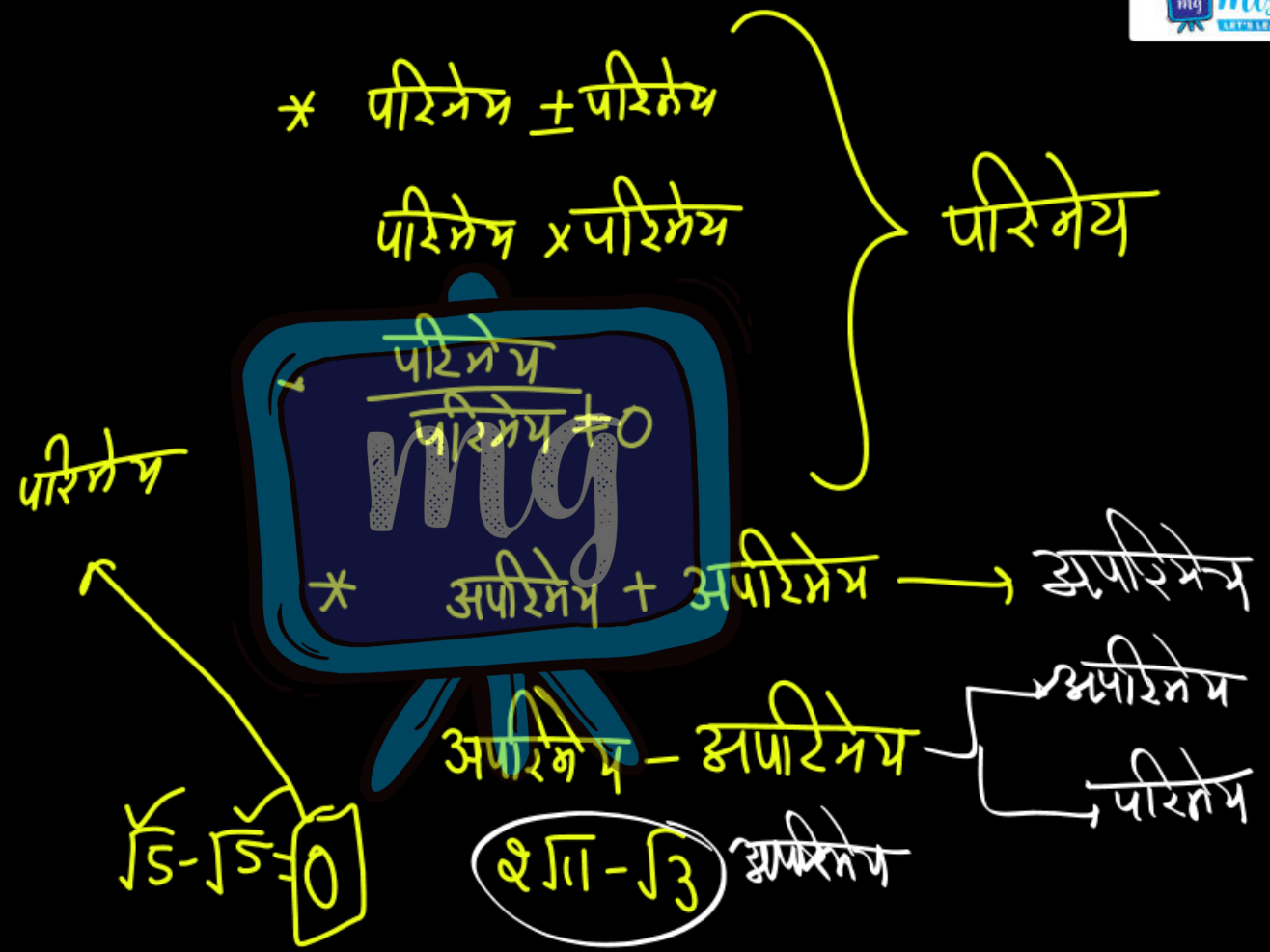
Q. ② परिमेय



2+√11 = अपरिमेय

Under CSR Support by ipca | Foundation

missiongyan LET'S LEARN TOGETHER



Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

* ~~अपरिमेय~~ × अपरिमेय → परिमेय / अपरिमेय

$\sqrt{3} \times \sqrt{2} = \sqrt{6}$ अपरि.

$\sqrt{3} \times \sqrt{3} = 3$ परिमेय

Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

परिमेय + अपरिमेय ⟶ अपरिमेय

परिमेय × अपरिमेय ⟶ अपरिमेय



Under CSR Support by
ipca | Foundation

missiongyan®
LET'S LEARN TOGETHER



Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

प्रश्नावली - 1.4

1. नीचे दी गई संख्या में बताइए की संख्या परिमेय हैं या अपरिमेय हैं :

I. $2-\sqrt{5}$

अपरिमेय

Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

प्रश्नावली - 1.4

II. $(3+\sqrt{23})-\sqrt{23}$

$3+\sqrt{23}-\sqrt{23}$

3 परिमेय

Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

प्रश्नावली - 1.4

III. $\frac{2\sqrt{7}}{7\sqrt{7}} = \frac{2}{7}$



Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

प्रश्नावली - 1.4

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

IV. $\frac{1}{\sqrt{2}}$ अंश / हर

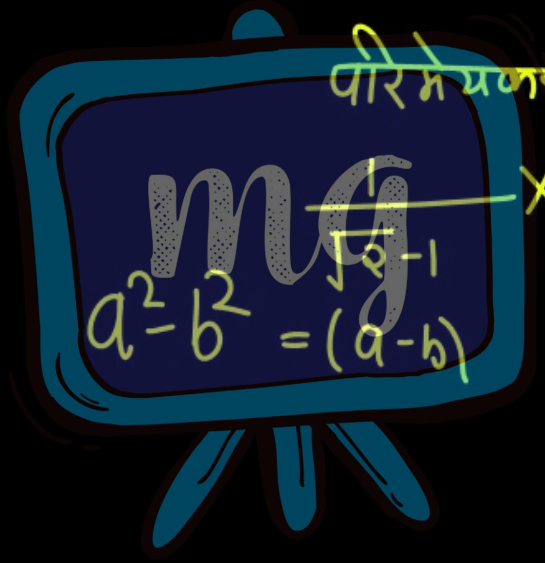
परिमेयकरण

$\frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

Q. $\frac{1}{\sqrt{2}-1}$



परिमेयकरण

$$\frac{1}{\sqrt{2}-1} \times \frac{\sqrt{2}+1}{\sqrt{2}+1} = \frac{\sqrt{2}+1}{(\sqrt{2})^2-(1)^2}$$

$(a+b)$

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

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

Under CSR Support by ipca | Foundation

missiongyan LET'S LEARN TOGETHER

Q $\frac{3}{2\sqrt{5}+3}$

परिमेय करण

$= \frac{3}{2\sqrt{5}+3} \times \frac{2\sqrt{5}-3}{2\sqrt{5}-3}$

$= \frac{3(2\sqrt{5}-3)}{(2\sqrt{5})^2 - 3^2} = \frac{6\sqrt{5}-9}{4\times 5 - 9}$

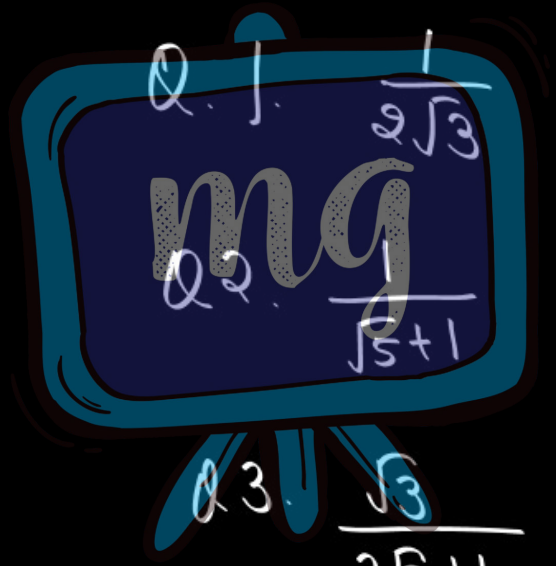
$= \frac{6\sqrt{5}-9}{20-9}$

$= \frac{6\sqrt{5}-9}{11}$

Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

H.W.



Q1. $\frac{1}{2\sqrt{3}}$

Q2. $\frac{1}{\sqrt{5}+1}$

Q3. $\frac{\sqrt{3}}{2\sqrt{3}+1}$

Q4 $\frac{3+\sqrt{2}}{3-\sqrt{2}}$

Under CSR Support by
ipca | Foundation

missiongyan®
LET'S LEARN TOGETHER



Under CSR Support by
ipca | Foundation

missiongyan®
LET'S LEARN TOGETHER

