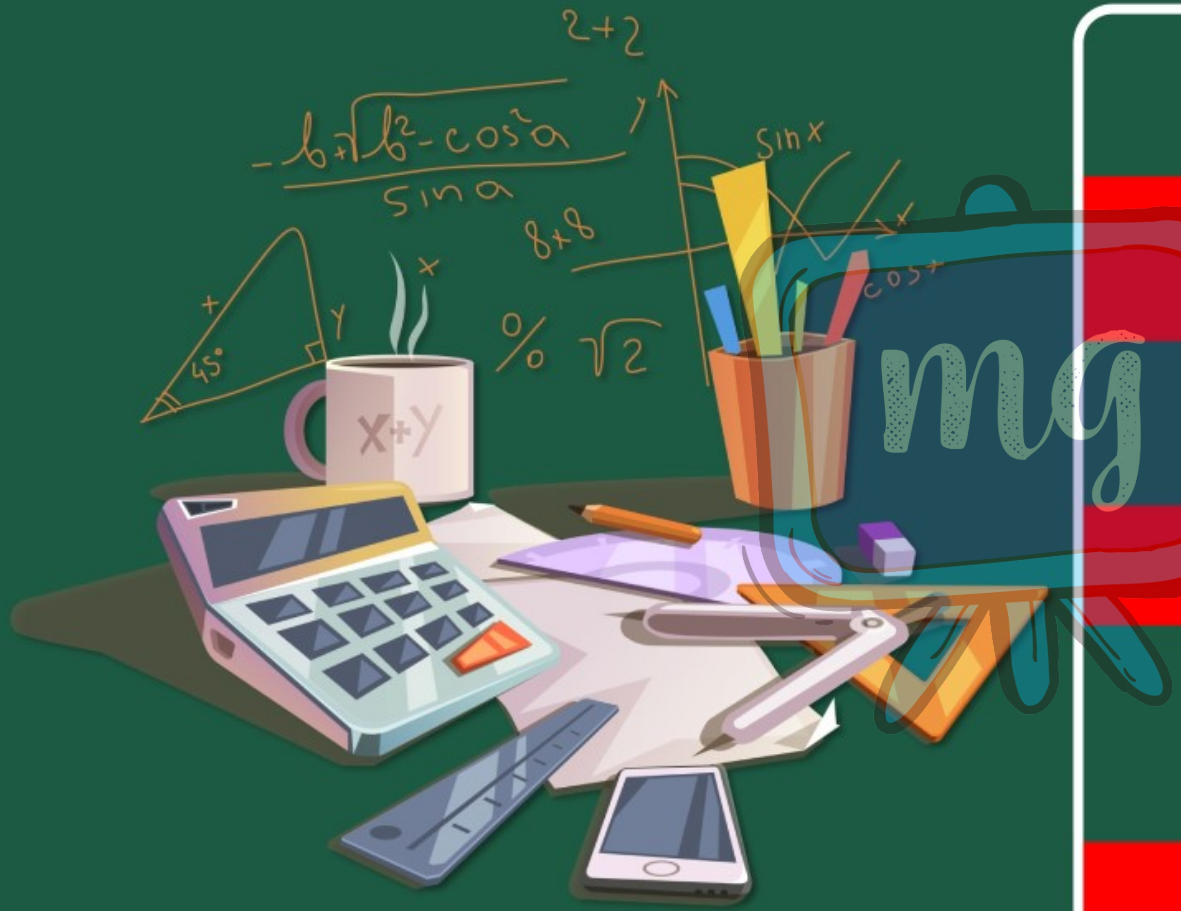
Under CSR Support by ipca | Foundation

missiongyan



कक्षा - 11

गणित

अध्याय – 1

समुच्चय

भाग – 10

प्रश्नावली 1.4 (7 से 12)

हर्ष गोयल

Under CSR Support by ipca | Foundation

missiongyan



प्रश्नावली 1.4

Under CSR Support by ipca | Foundation

missiongyan LET'S LEARN TOGETHER

$A = \{1, 2, 3 \ldots\}$

$B = \{2, 4, 6, 8 \ldots\}$

$C = \{1, 3, 5, 7 \ldots\}$

$D = \{2, 3, 5, 7 \ldots\}$

7. यदि A = {x : x एक प्राकृत संख्या है},
B = {x : x एक सम प्राकृत संख्या है}
C = {x : x एक विषम प्राकृत संख्या है}
D = {x : x एक अभाज्य संख्या है}, तो
निम्नलिखित ज्ञात कीजिए:

(i) $A \cap B$

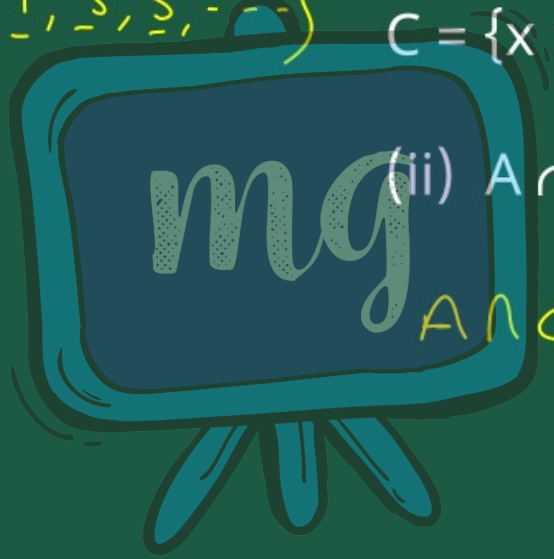
$A \cap B = \{2, 4, 6, 8, 10 \ldots\}$

Under CSR Support by ipca | Foundation

missiongyan LET'S LEARN TOGETHER

$A = \{1, 2, 3 \cdots\}$ A = {x : x एक प्राकृत संख्या है},

$C = \{1, 3, 5, \cdots\}$ C = {x : x एक विषम प्राकृत संख्या है}



(ii) $A \cap C$

$A \cap C = \{1, 3, 5, 7 \cdots\}$

Under CSR Support by ipca | Foundation

missiongyan LET'S LEARN TOGETHER

A = {x : x एक प्राकृत संख्या है},

D = {x : x एक अभाज्य संख्या है}

(iii) $A \cap D$

$A = \{1, 2, 3, 4 \ldots\ldots\}$

$D = \{2, 3, 5, 7 \ldots\ldots\}$

$A \cap D = \{2, 3, 5, 7 \ldots\ldots\}$

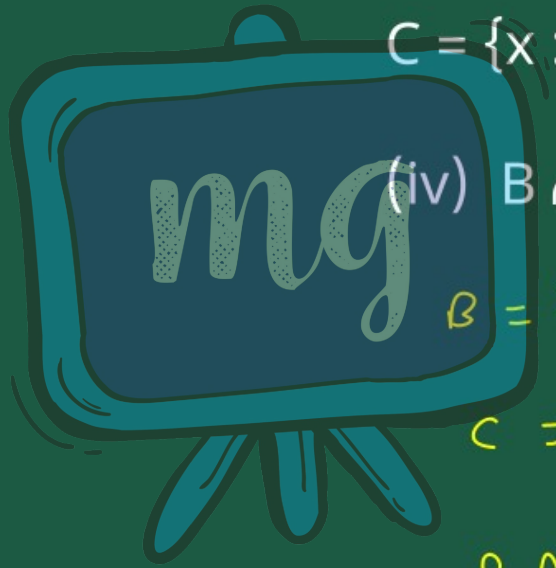
Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

B = {x : x एक सम प्राकृत संख्या है}

C = {x : x एक विषम प्राकृत संख्या है}

(iv) $B \cap C$



$B = \{2, 4, 6, 8, \ldots\ldots\}$

$C = \{1, 3, 5, 7, \ldots\ldots\}$

$B \cap C = \phi$

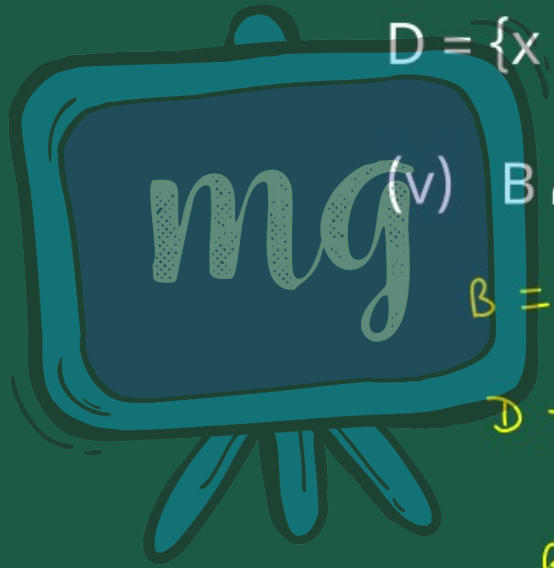
Under CSR Support by ipca | Foundation

missiongyan LET'S LEARN TOGETHER

B = {x : x एक सम प्राकृत संख्या है}

D = {x : x एक अभाज्य संख्या है}

(v) $B \cap D$



$B = \{2, 4, 6, 8, 10 \ldots\ldots\}$

$D = \{2, 3, 5, 7, \ldots\ldots\}$

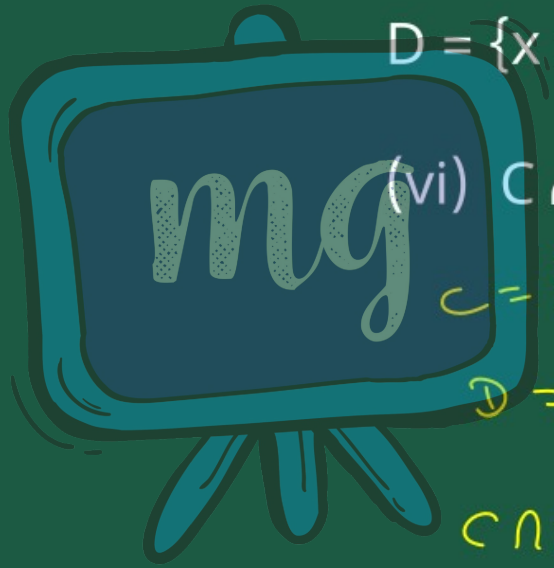
$B \cap D = \{2\}$

Under CSR Support by ipca | Foundation

missiongyan LET'S LEARN TOGETHER

C = {x : x एक विषम प्राकृत संख्या है}

D = {x : x एक अभाज्य संख्या है}



(vi) $C \cap D$

$C = \{1, 3, 5, 7 \ldots\ldots\}$

$D = \{2, 3, 5, 7, 11 \ldots\ldots\}$

$C \cap D = \{3, 5, 7, 11, 13 \ldots\ldots\}$

Under CSR Support by ipca | Foundation

missiongyan LET'S LEARN TOGETHER

8. निम्नलिखित समुच्चय युग्मों में से कौन से युग्म असंयुक्त हैं?

(i) {1, 2, 3, 4} तथा {x : x एक प्राकृत संख्या है और $4 \leq x \leq 6$}

A तथा B असंयुक्त

$A \cap B = \phi$

माना $A = \{1, 2, 3, \underline{4}\}$

$B = \{\underline{4}, 5, 6\}$

$A \cap B = \{4\}$ तो A तथा B असंयुक्त नहीं है।

$\therefore A \cap B \neq \phi$

Under CSR Support by ipca | Foundation

missiongyan LET'S LEARN TOGETHER

(ii) {a, e, i, o, u} तथा {c, d, e, f}

माना $A = \{a, e, i, o, u\}$

तथा $B = \{c, d, e, f\}$



$A \cap B = \{e\}$

$\therefore A \cap B \neq \phi$

$\therefore$ A व B समुच्चय का युग्म असंयुक्त नहीं है।

Under CSR Support by ipca | Foundation

missiongyan LET'S LEARN TOGETHER

(iii) {x : x एक सम पूर्णांक है} और

{x : x एक विषम पूर्णांक है}



माना $A = \{2, 4, 6, 8, \ldots\}$

$B = \{1, 3, 5, 7 \ldots\}$

$A \cap B = \{\} = \phi$

$\therefore A \cap B = \phi$

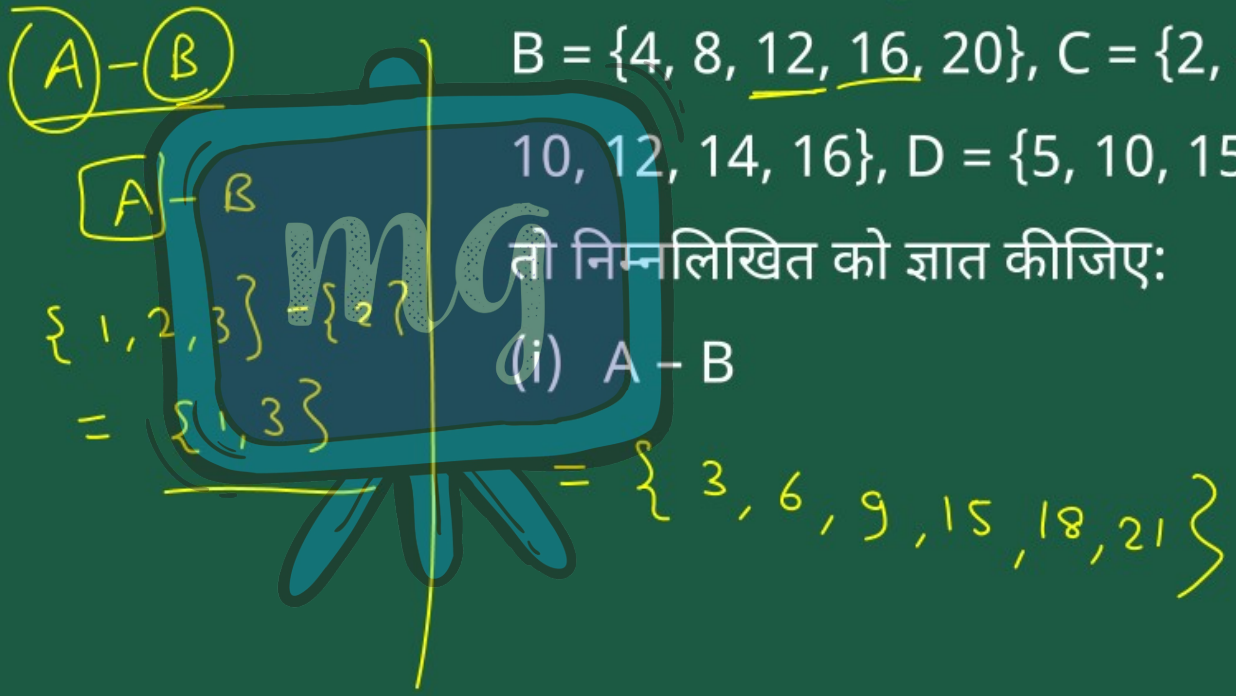
$\therefore$ A तथा B समुच्चय का युग्म असंयुक्त है।

Under CSR Support by ipca | Foundation

missiongyan LET'S LEARN TOGETHER

9. यदि A = {3, 6, 9, 12, 15, 18, 21}, B = {4, 8, 12, 16, 20}, C = {2, 4, 6, 8, 10, 12, 14, 16}, D = {5, 10, 15, 20}; तो निम्नलिखित को ज्ञात कीजिए:

(i) A – B



Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

A = {3, 6, 9, 12, 15, 18, 21},

C = {2, 4, 6, 8, 10, 12, 14, 16}

(ii) A – C

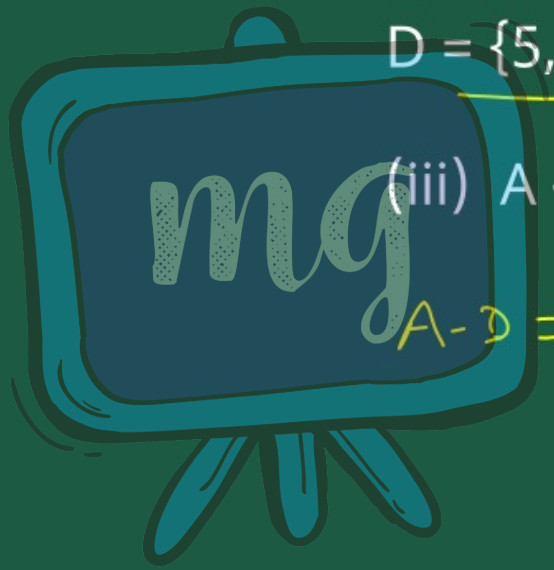
= {3, 9, 15, 18, 21}

Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

A = {3, 6, 9, 12, 15, 18, 21},

D = {5, 10, 15, 20}



(iii) A – D

A - D = {3, 6, 9, 12, 18, 21}

Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

A = {3, 6, 9, 12, 15, 18, 21},

B = {4, 8, 12, 16, 20}

(iv) B – A

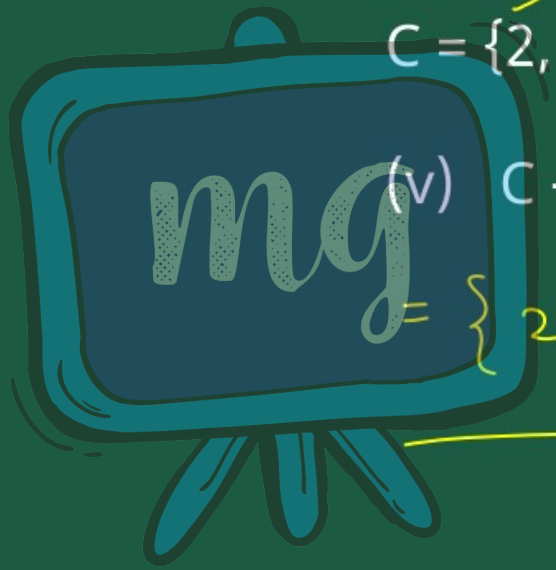
= {4, 8, 16, 20}

Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

A = {3, 6, 9, 12, 15, 18, 21},

C = {2, 4, 6, 8, 10, 12, 14, 16}



(v) C – A

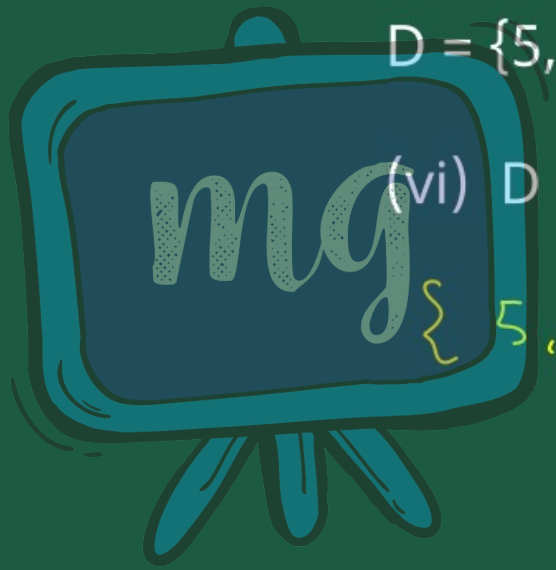
= {2, 4, 8, 10, 14, 16}

Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

A = {3, 6, 9, 12, 15, 18, 21},

D = {5, 10, 15, 20}



(vi) D – A

{5, 10, 20}

Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

B = {4, 8, 12, 16, 20},

C = {2, 4, 6, 8, 10, 12, 14, 16}

(vii) B – C

= {20}

Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

B = {4, 8, 12, 16, 20},

D = {5, 10, 15, 20}

(viii) B – D

= {4, 8, 12, 16}

Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

B = {4, 8, 12, 16, 20},

C = {2, 4, 6, 8, 10, 12, 14, 16}

(ix) C – B

= {2, 6, 10, 14}

Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

B = {4, 8, 12, 16, 20},

D = {5, 10, 15, 20}

(x) D – B

= {5, 10, 15}

Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

C = {2, 4, 6, 8, 10, 12, 14, 16},

D = {5, 10, 15, 20}

(xi) C – D

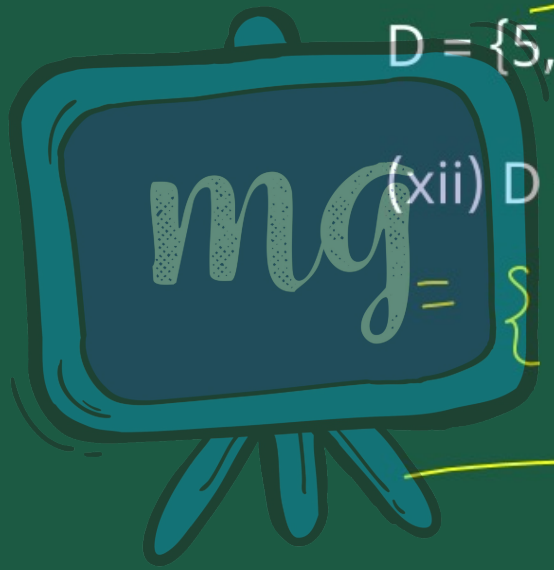
= {2, 4, 6, 8, 12, 14, 16}

Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

C = {2, 4, 6, 8, 10, 12, 14, 16},

D = {5, 10, 15, 20}



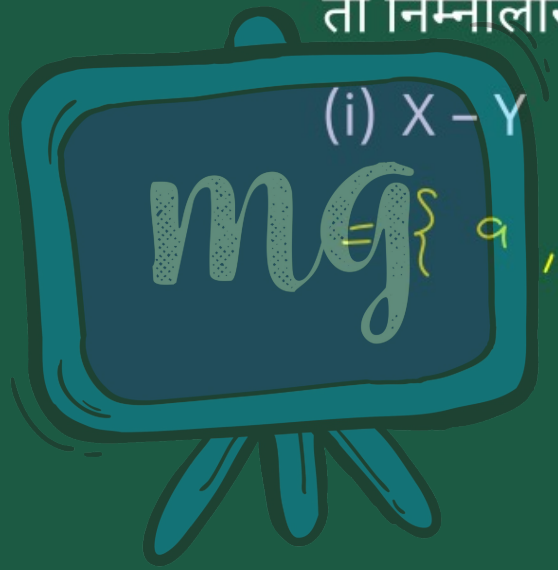
(xii) D – C

= {5, 15, 20}

Under CSR Support by ipca | Foundation

missiongyan LET'S LEARN TOGETHER

10. यदि X = {a, b, c, d } और Y = {f, b, d, g},
तो निम्नलिखित को ज्ञात कीजिए:



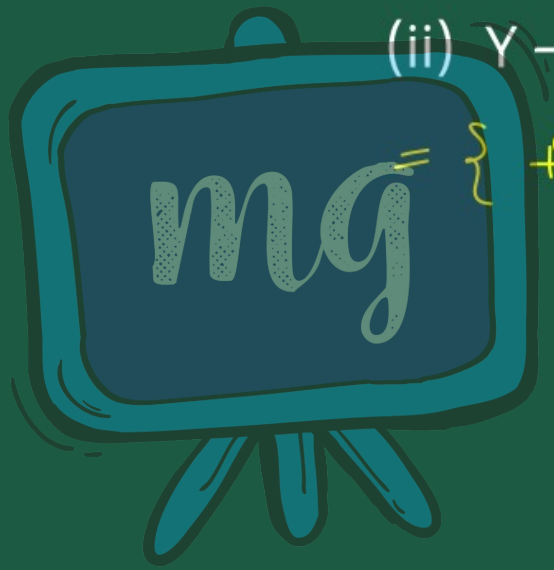
Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

$X = \{a, b, c, d\}, Y = \{f, b, d, g\}$

(ii) $Y - X$

$= \{f, g\}$

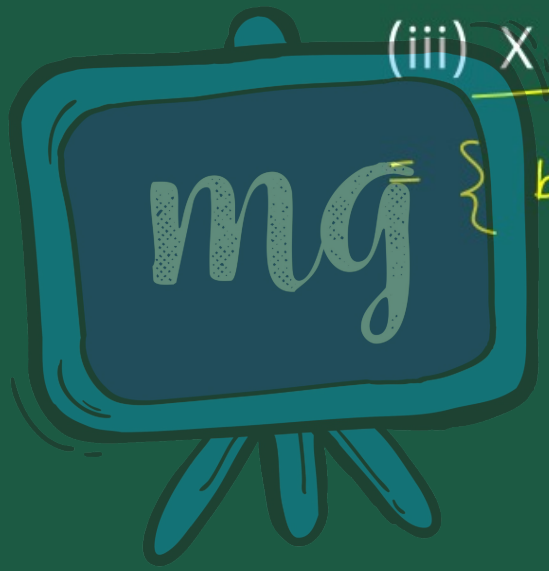


Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

$X = \{a, b, c, d\}, Y = \{f, b, d, g\}$

(iii) $X \cap Y$



$\{b, d\}$

Under CSR Support by ipca | Foundation

missiongyan LET'S LEARN TOGETHER

11. यदि R वास्तविक संख्याओं और Q परिमेय संख्याओं के समुच्चय हैं, तो R – Q क्या होगा ?



R = सभी वास्तविक संख्याओं का समुच्चय

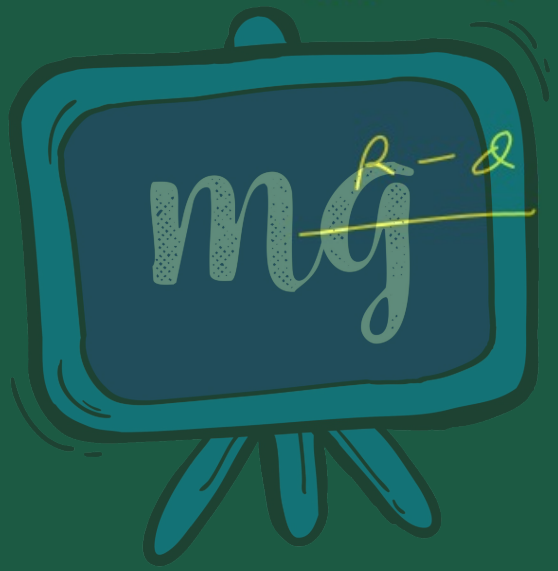
Q = सभी परिमेय संख्याओं का समुच्चय

$R = Q \cup Q^c$

Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

वास्तविक संख्याओं का समुच्चय = परिमेय + अपरिमेय



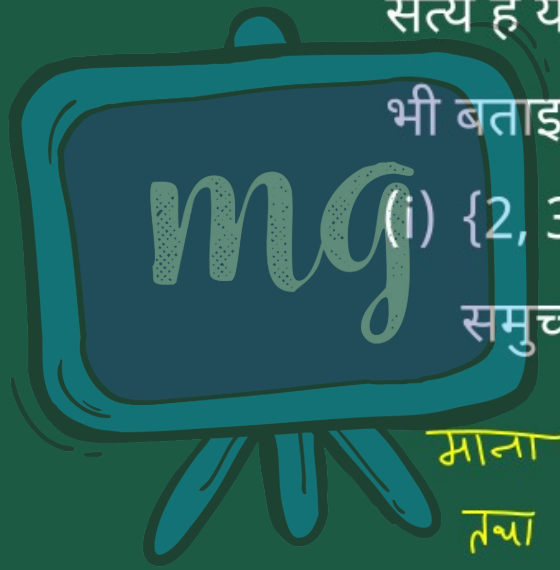
= सभी अपरिमेय संख्याओं का समुच्चय

Under CSR Support by ipca | Foundation

missiongyan LET'S LEARN TOGETHER

12. बताइए कि निम्नलिखित कथनों में से प्रत्येक सत्य है या असत्य? अपने उत्तर का औचित्य भी बताइए:

(i) {2, 3, 4, 5} तथा {3, 6} असंयुक्त समुच्चय हैं।



माना $A = \{2, 3, 4, 5\}$

तथा $B = \{3, 6\}$

$A \cap B = \{3\}$

Under CSR Support by
ipca | Foundation

missiongyan
LET'S LEARN TOGETHER

$\therefore A \cap B \neq \phi$

$\therefore$ A तथा B समुच्चय का युग्म असंयुक्त नहीं होगा



असत्य कथन है

क्योंकि A तथा B समुच्चय असंयुक्त नहीं है

Under CSR Support by ipca | Foundation

missiongyan LET'S LEARN TOGETHER

(ii) {a, e, i, o, u} तथा {a, b, c, d}

असंयुक्त समुच्चय हैं।



माना $A = \{a, e, i, o, u\}$

तथा $B = \{a, b, c, d\}$

$A \cap B = \{a\}$

$\therefore A \cap B \neq \phi$

तो A तथा B असंयुक्त नहीं

अपेक्षित

Under CSR Support by ipca | Foundation

missiongyan LET'S LEARN TOGETHER

(iii) {2, 6, 10, 14} तथा {3, 7, 11, 15}

असंयुक्त समुच्चय हैं।



माना $A = \{2, 6, 10, 14\}$

तथा $B = \{3, 7, 11, 15\}$

$A \cap B = \{\} = \phi$

$\because A \cap B = \phi$

$\therefore$ A तथा B असंयुक्त समुच्चय हैं।

सत्य

Under CSR Support by ipca | Foundation

missiongyan LET'S LEARN TOGETHER

(iv) {2, 6, 10} तथा {3, 7, 11} असंयुक्त समुच्चय हैं।



माना $A = \{2, 6, 10\}$

तथा $B = \{3, 7, 11\}$

$A \cap B = \{\} = \phi$

$\because A \cap B = \phi$

$\therefore$ A तथा B असंयुक्त समुच्चय हैं।

सत्य