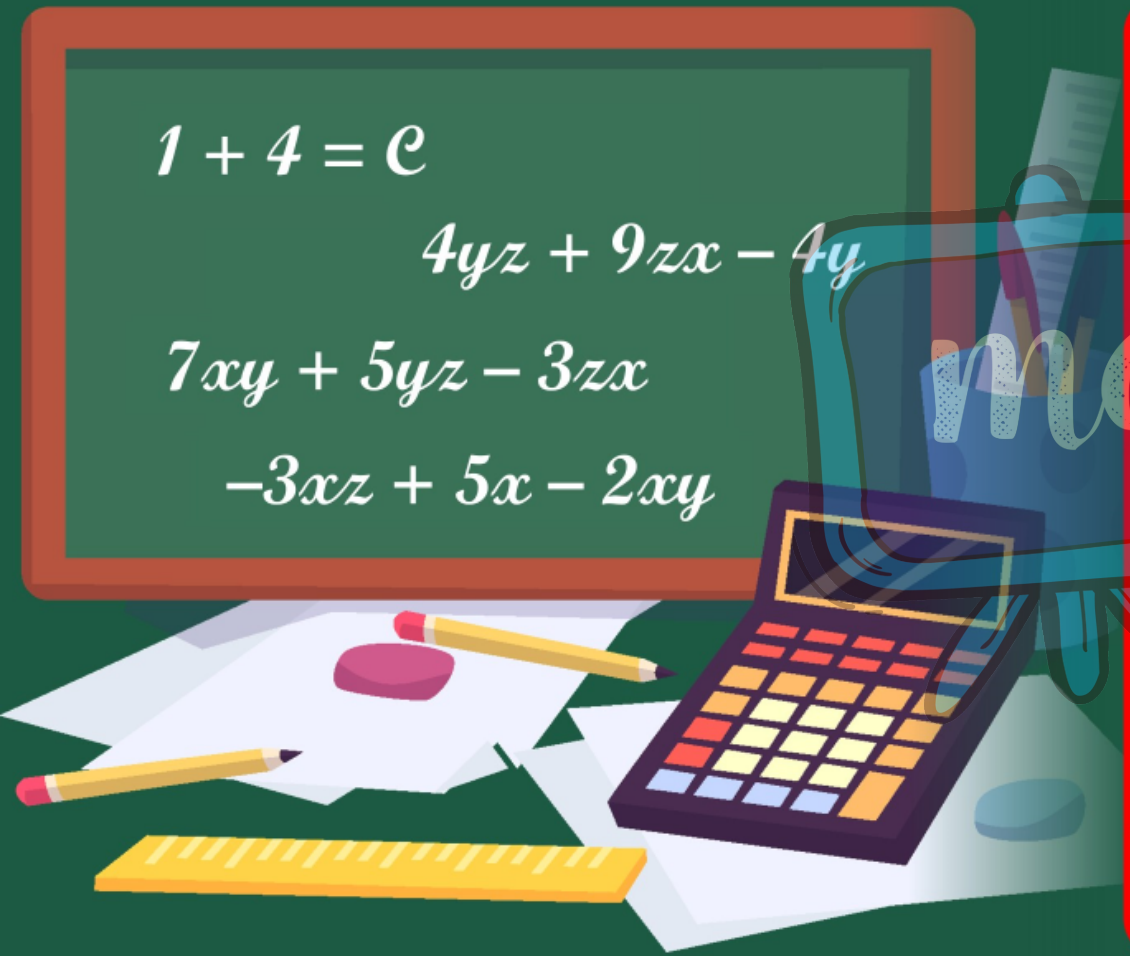
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कक्षा - 8

गणित

अध्याय - 8

बीजीय व्यंजक एवं सर्वसमिकाएँ

भाग - 1

बीजीय व्यंजकों का योग एवं व्यवकलन

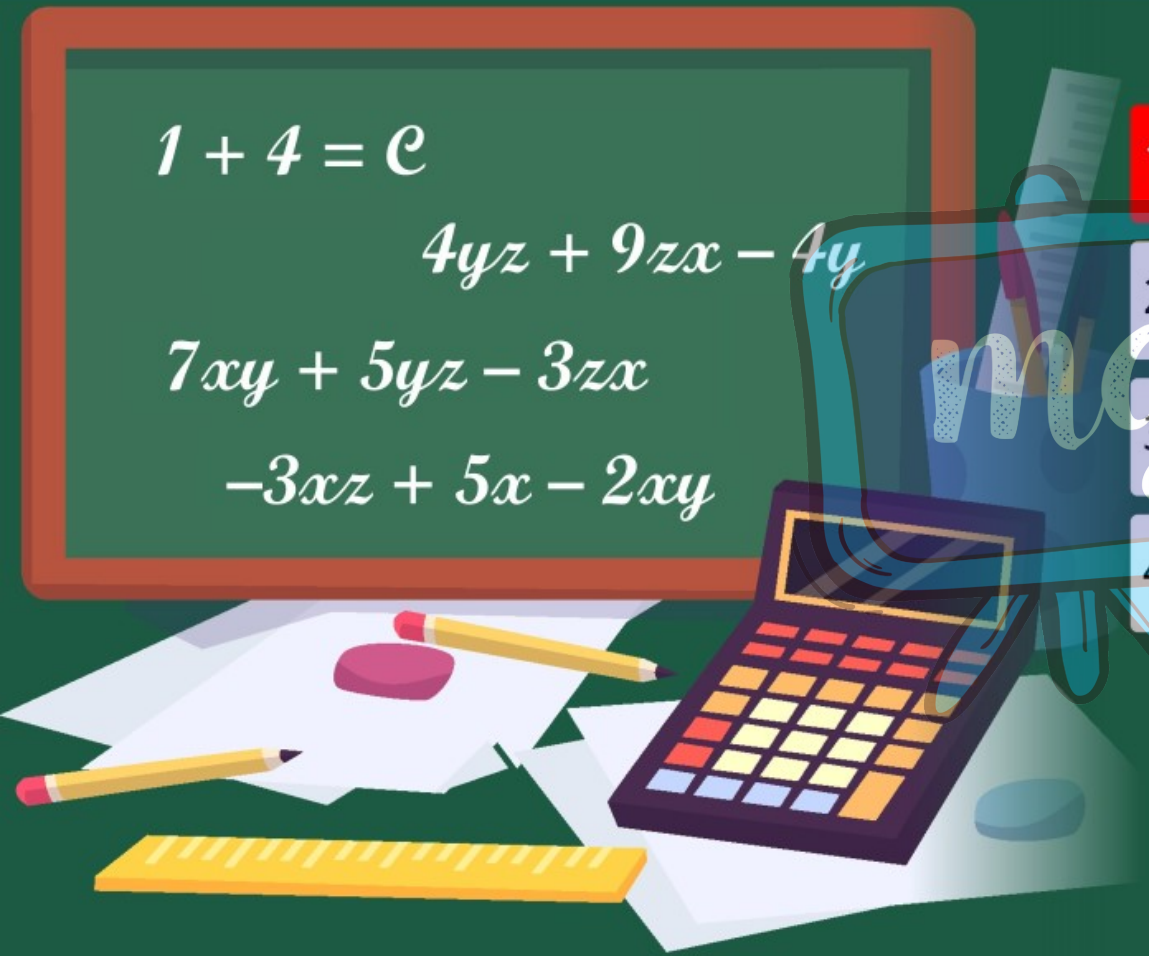
तथा प्रश्नावली 8.1

राम राईका

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विवरण (Overview)

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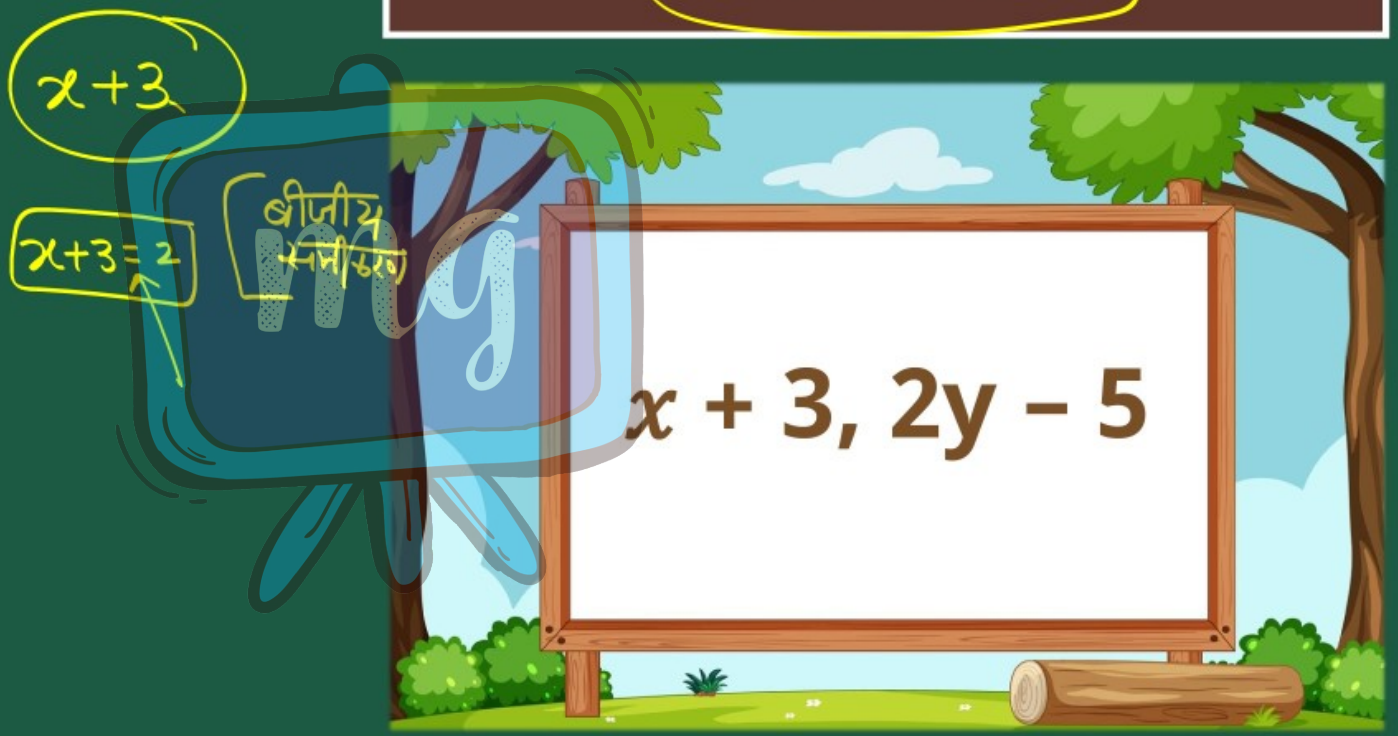


1. बीजीय व्यंजकों का योग एवं व्यवकलन
2. एकपदी को एकपदी से गुणा करना
3. एकपदी को बहुपद से गुणा करना
4. बहुपद को बहुपद से गुणा करना

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बीजीय व्यंजक



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बीजीय व्यंजकों का योग एवं व्यवकलन

योग।

Q. $7x^2 - 8x + 13$ तथा $8x^2 + 5x - 2$ का योग

$$\begin{array}{r} 7x^2 - 8x + 13 \\ +\ 8x^2 + 5x - 2 \\ \hline 15x^2 - 3x + 11 \end{array}$$

$(2x+3) + (x-2)$

$(2x+3) - x + 2$

व्यवकलन

Q. $13x^2 - 2x + 5$ में से $-5x^2 + 3x - 2$ को घटाइए।

$$\begin{array}{r} 13x^2 - 2x + 5 \\ \ominus 5x^2 \ominus 3x \ominus 2 \\ \hline 18x^2 - 5x + 7 \end{array}$$

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+9 -6

उदाहरण-1

$7xy + 5yz - 3zx$, $4yz + 9zx - 4y$, $-3xz + 5x - 2xy$ का योग ज्ञात कीजिए।

$7xy + 5yz - 3zx$

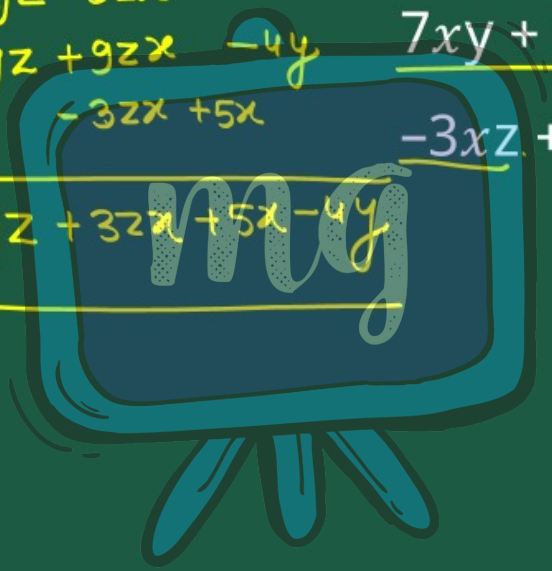
$+ \quad 4yz + 9zx - 4y$

$+ \quad -2xy - 3zx + 5x$

$5xy + 9yz + 3zx + 5x - 4y$

$3 \times 4 = 12$

$4 \times 3 = 12$



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उदाहरण-2

$7x^2 - 4xy + 8y^2 + 5x - 3y$ में से $5x^2 - 4y^2 + 6y - 3$ को घटाइए।

$7x^2 - 4xy + 8y^2 + 5x - 3y$

$5x^2 \quad -4y^2 \quad +6y \quad -3$

$\ominus \quad \oplus \quad \ominus \quad \oplus$

$2x^2 - 4xy + 12y^2 + 5x - 9y + 3$

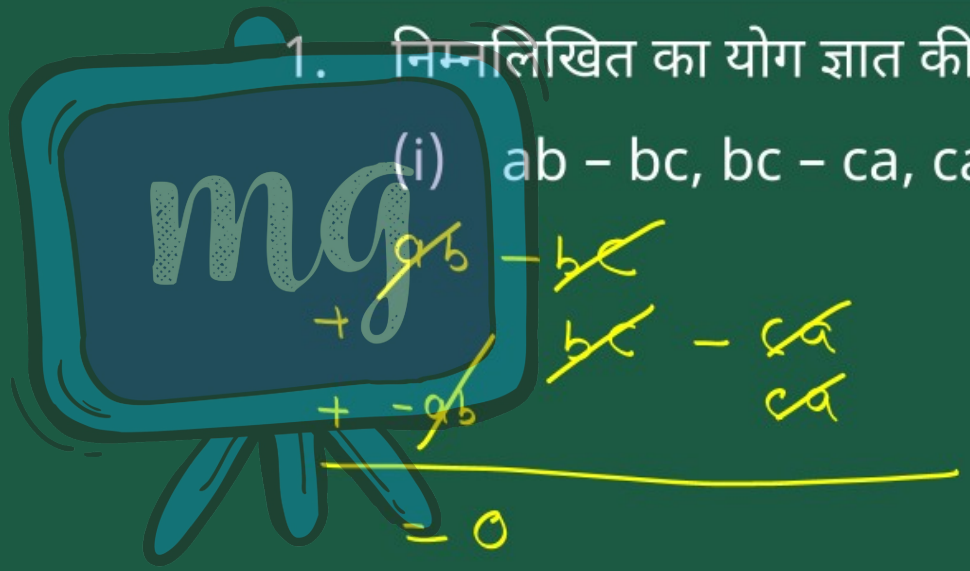
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प्रश्नावली 8.1

1. निम्नलिखित का योग ज्ञात कीजिए :

(i) ab – bc, bc – ca, ca – ab

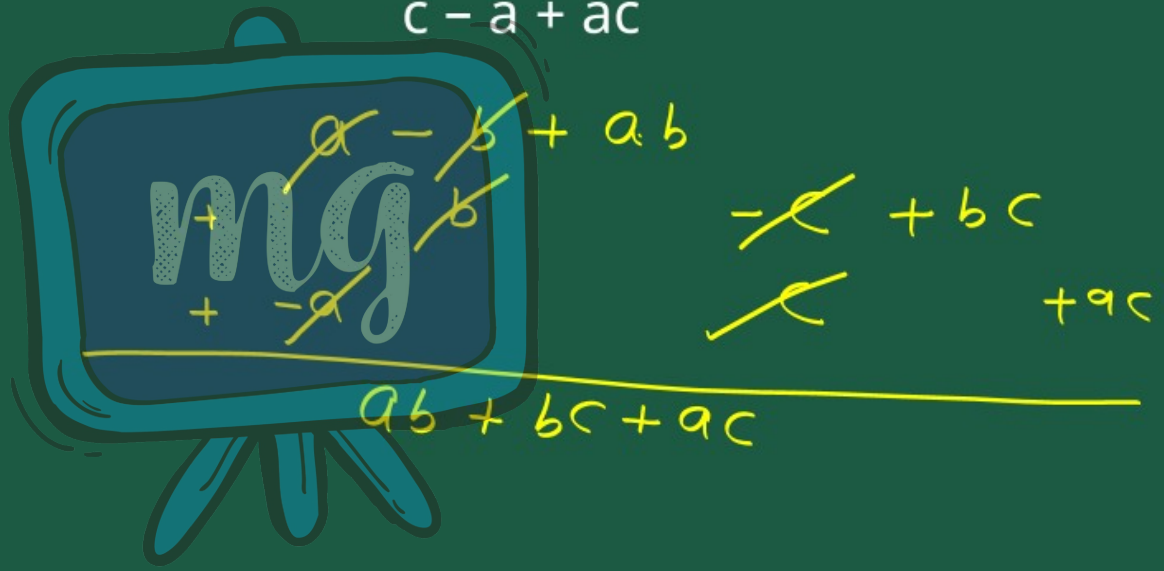


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(ii) $a - b + ab$, $b - c + bc$,

$c - a + ac$

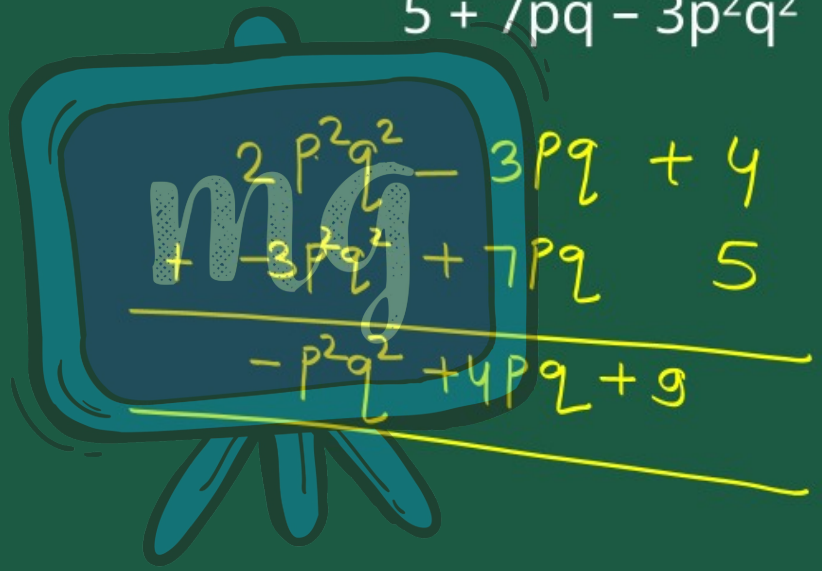


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(iii) $2p^2q^2 - 3pq + 4$,

$5 + 7pq - 3p^2q^2$

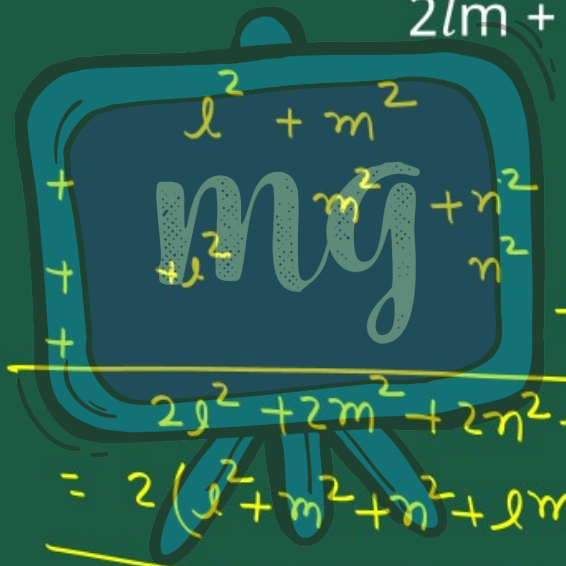


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(iv) $l^2 + m^2,\ m^2 + n^2,\ n^2 + l^2,$

$2lm + 2mn + 2nl$



$l^2 + m^2$

$+ m^2 + n^2$

$+ l^2 + n^2$

$+ 2lm + 2mn + 2nl$

$2l^2 + 2m^2 + 2n^2 + 2lm + 2mn + 2nl$

$= 2(l^2 + m^2 + n^2 + lm + mn + nl)$

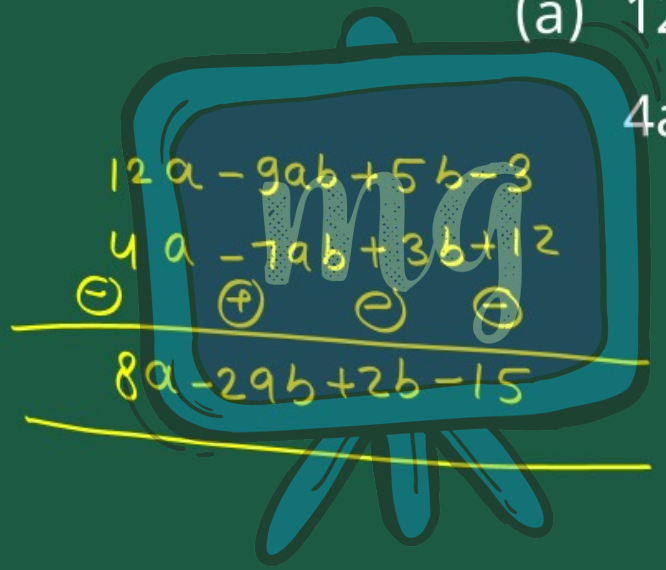
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2.

(a) 12a – 9ab + 5b – 3 में से

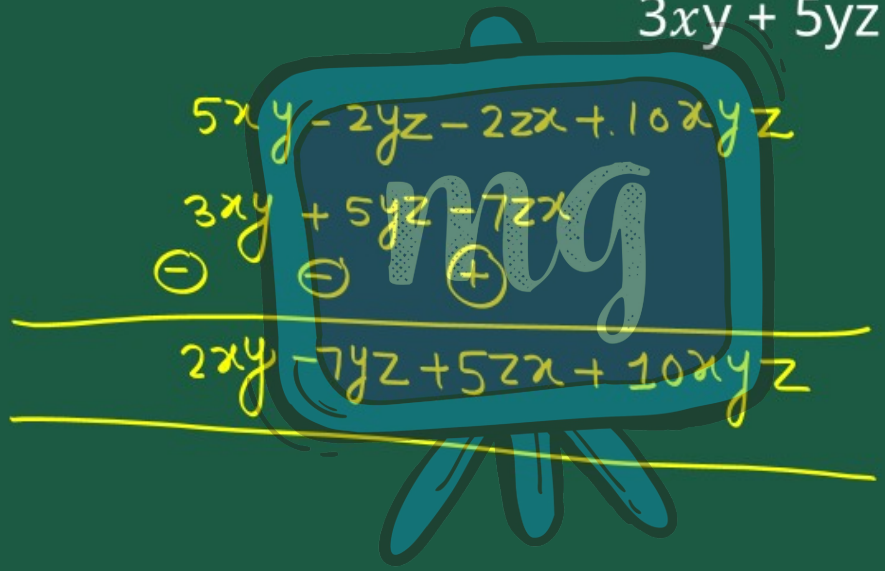
4a – 7ab + 3b + 12 को घटाइए।



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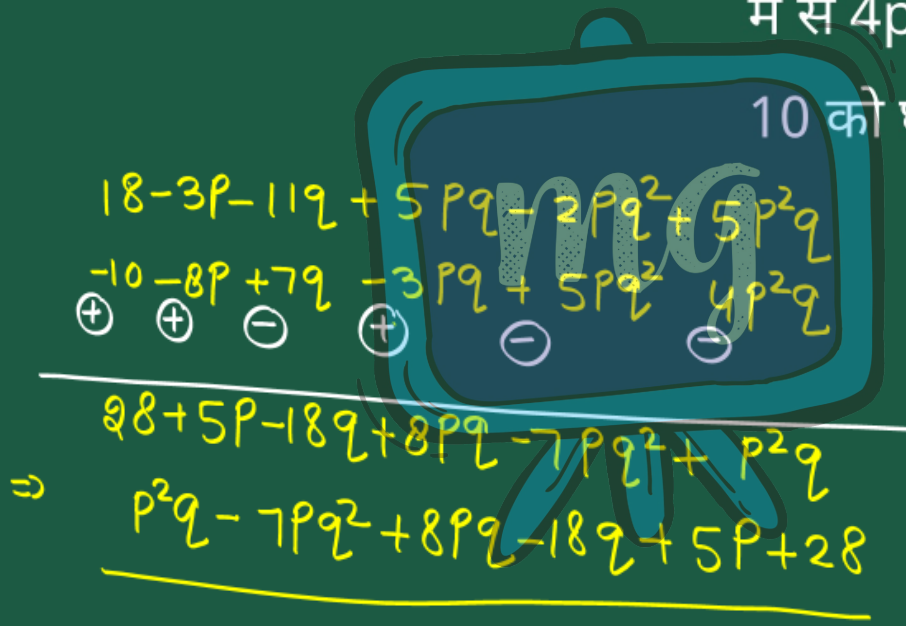
(b) $5xy - 2yz - 2zx + 10xyz$ में से $3xy + 5yz - 7zx$ को घटाइए।



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(c) $18 - 3p - 11q + 5pq - 2pq^2 + 5p^2q$ में से $4p^2q - 3pq + 5pq^2 - 8p + 7q - 10$ को घटाइए।



$18 - 3p - 11q + 5pq - 2pq^2 + 5p^2q$

$-10 - 8p + 7q - 3pq + 5pq^2 - 4p^2q$

$\oplus \quad \oplus \quad \ominus \quad \oplus \quad \ominus \quad \ominus$

$28 + 5p - 18q + 8pq - 7pq^2 + p^2q$

$\Rightarrow p^2q - 7pq^2 + 8pq - 18q + 5p + 28$