



இயல் 7.3 இயற்கணிதம்

பயிற்சி எண் :: 7.3.2.2.B

இயற்கணிதம் (Algebra) - இயற்கணிதக்கோவையின் கூட்டல் - தநாஅபு - பயிற்சி 3.2.5

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5. பின்வரும் கோவைகளின் கூடுதல் காண்க.

i) $7p + 6q, 5p - q, q + 16p$

$$\begin{aligned}(7p + 6q) + (5p - q) + (q + 16p) &= \overset{1}{7}p + \overset{2}{6}q + \overset{3}{5}p - \overset{4}{q} + \overset{5}{q} + \overset{6}{16}p \\ &= (\overset{1}{7}p + \overset{3}{5}p + \overset{6}{16}p) + (\overset{2}{6}q - \overset{4}{q} + \overset{5}{q}) \\ &= (7 + 5 + 16)p + (6 - 1 + 1)q \\ &= 28p + 6q\end{aligned}$$

கோவைகளின் கூடுதல் : $28p + 6q$

ii) $a + 5b + 7c, 2a + 10b + 9c$

$$\begin{aligned}(a + 5b + 7c) + (2a + 10b + 9c) &= \overset{1}{a} + \overset{2}{5}b + \overset{3}{7}c + \overset{4}{2}a + \overset{5}{10}b + \overset{6}{9}c \\ &= (\overset{1}{a} + \overset{4}{2}a) + (\overset{2}{5}b + \overset{5}{10}b) + (\overset{3}{7}c + \overset{6}{9}c) \\ &= (1 + 2)a + (5 + 10)b + (7 + 9)c \\ &= 3a + 15b + 16c\end{aligned}$$

கோவைகளின் கூடுதல் : $3a + 15b + 16c$

iii) $mn + t, 2mn - 2t, -3t + 3mn$

$$\begin{aligned}(mn + t) + (2mn - 2t) + (-3t + 3mn) &= \overset{1}{m}n + \overset{2}{t} + \overset{3}{2}mn - \overset{4}{2}t - \overset{5}{3}t + \overset{6}{3}mn \\ &= (\overset{1}{m}n + \overset{3}{2}mn + \overset{6}{3}mn) + (\overset{2}{t} - \overset{4}{2}t - \overset{5}{3}t) \\ &= (1 + 2 + 3)mn + (1 - 2 - 3)t \\ &= 6mn + (1 - 5)t \\ &= 6mn - 4t\end{aligned}$$

கோவைகளின் கூடுதல் : $6mn - 4t$

iv) $u + v, u - v, 2u + 5v, 2u - 5v$

$$\begin{aligned}(u + v) + (u - v) + (2u + 5v) + (2u - 5v) &= \overset{1}{u} + \overset{2}{v} + \overset{3}{u} - \overset{4}{v} + \overset{5}{2}u + \overset{6}{5}v + \overset{7}{2}u - \overset{8}{5}v \\ &= (\overset{1}{u} + \overset{3}{u} + \overset{5}{2}u + \overset{7}{2}u) + (\overset{2}{v} - \overset{4}{v} + \overset{6}{5}v - \overset{8}{5}v) \\ &= (1 + 1 + 2 + 2)u + (1 - 1 + 5 - 5)v \\ &= 6u - 0v = 6u\end{aligned}$$

கோவைகளின் கூடுதல் : $6u$

v) $5xyz - 3xy, 3zxy - 5yx$

$$\begin{aligned}(5xyz - 3xy) + (3zxy - 5yx) &= \overset{1}{5}xyz - \overset{2}{3}xy + \overset{3}{3}zxy - \overset{4}{5}yx \\ &= (\overset{1}{5}xyz + \overset{3}{3}zxy) + (-\overset{2}{3}xy - \overset{4}{5}yx) \\ &= (5 + 3)xyz - (3 + 5)xy \\ &= 8xyz - 8xy\end{aligned}$$

பெருக்கல் செயலி பரிமாற்றுப் பண்பை நிறைவு செய்வதால் இவை ஒத்த உறுப்புகளாகும். எனவே, $xyz = zxy$ மற்றும் $xy = yx$

கோவைகளின் கூடுதல் : $8xyz - 8xy$

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<https://ramaswamychellamtrust.org> § info@ramaswamychellamtrust.org

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