

Chapter 09

ALGEBRAIC EXPRESSION & IDENTITIES

Example-1:

Add $\frac{3}{2}x - \frac{5}{4}y + \frac{2}{5}z$, $\frac{2}{3}x - \frac{7}{2}y + \frac{7}{2}z$, $\frac{5}{3}x + \frac{5}{2}y - \frac{5}{4}z$.

Solution:

Required sum,

$$= \left(\overset{1}{\frac{3}{2}}x - \overset{2}{\frac{5}{4}}y + \overset{3}{\frac{2}{5}}z \right) + \left(\overset{1}{\frac{2}{3}}x - \overset{2}{\frac{7}{2}}y + \overset{3}{\frac{7}{2}}z \right) + \left(\overset{1}{\frac{5}{3}}x + \overset{2}{\frac{5}{2}}y - \overset{3}{\frac{5}{4}}z \right)$$

$$= \left(\frac{3}{2} + \frac{2}{3} + \frac{5}{3} \right)x + \left(\frac{-5}{4} - \frac{7}{2} + \frac{5}{2} \right)y + \left(\frac{2}{5} + \frac{7}{2} - \frac{5}{4} \right)z$$

$$= \left(\frac{9+4+10}{6} \right)x + \left(\frac{-5-14+10}{4} \right)y + \left(\frac{8+70-25}{20} \right)z$$

Required sum $\boxed{= \frac{23}{6}x - \frac{9}{4}y + \frac{53}{20}z}$.