

Exercise 6A

Answer:

(i)

$$5x + 7x + (-6x)$$

 $= 5x + 7x - 6x$
 $= 6x$

(ii)

$$\frac{\frac{3}{5}x + \frac{2}{3}x + \frac{-4}{5}x}{= \frac{9x + 10x - 12x}{15} = \frac{7x}{15}$$

(iii)

$$5a^2b + (-8a^2b) + 7a^2b$$

 $= 5a^2b - 8a^2b + 7a^2b$
 $4a^2b$

(iv)

$$\frac{3}{4}x^{2} + 5x^{2} + \left(-3x^{2}\right) + \left(-\frac{1}{4}x^{2}\right)$$

$$= \frac{3}{4}x^{2} - \frac{1}{4}x^{2} + 5x^{2} - 3x^{2}$$

$$= \frac{1}{2}x^{2} + 2x^{2} = \frac{5}{2}x^{2}$$

(V)

$$x - 3y + 4z + y - 2x - 8z + 5x - 2y - 3z$$

= $x - 2x + 5x - 3y + y - 2y + 4z - 8z - 3z$
= $4x - 4y - 7z$

(vi) Collecting like terms and adding them:

$$2x^{2} - 3y^{2} + 5x^{2} + 6y^{2} + (-3x^{2} - 4y^{2})$$

$$= 2x^{2} + 5x^{2} - 3x^{2} - 3y^{2} + 6y^{2} - 4y^{2}$$

$$= 4x^{2} - y^{2}$$

(vii) Collecting like terms and adding them:

$$5x - 2x^2 - 8 + 8x^2 - 7x - 9 + 3 + 7x^2 - 2x$$

(viii) Collecting like terms and adding them:

$$\frac{2}{3}\mathbf{a} - \frac{4}{5}\mathbf{b} + \frac{3}{5}\mathbf{c} + \left(-\frac{3}{4}\mathbf{a} - \frac{5}{2}\mathbf{b} + \frac{2}{3}\mathbf{c}\right) + \frac{5}{2}\mathbf{a} + \frac{7}{4}\mathbf{b} - \frac{5}{6}\mathbf{c}
\mathbf{b} - \frac{5}{2}\mathbf{b} + \frac{7}{4}\mathbf{b} + \frac{3}{5}\mathbf{c} + \frac{2}{3}\mathbf{c} - \frac{5}{6}\mathbf{c}
= \frac{(8 - 9 + 30)\mathbf{a}}{12} + \frac{(-16 - 50 + 35)\mathbf{b}}{20} + \frac{(18 + 20 - 25)\mathbf{c}}{30}
= \frac{29}{12}\mathbf{a} - \frac{31}{20}\mathbf{b} + \frac{13}{30}\mathbf{c}$$

(ix) Collecting like terms and adding them:

$$\frac{8}{5}x + \frac{11}{7}y + \frac{9}{4}xy + \left(-\frac{3}{2}x - \frac{5}{3}y - \frac{9}{5}xy\right)
= \frac{8}{5}x - \frac{3}{2}x + \frac{11}{7}y - \frac{5}{3}y + \frac{9}{4}xy - \frac{9}{5}xy
= \frac{1}{10}x - \frac{2}{21}y + \frac{9}{20}xy$$

(x) Collecting like terms and adding them:

$$\frac{3}{2}x^{3} - \frac{1}{4}x^{2} + \frac{5}{3} + \left(-\frac{5}{4}x^{3} + \frac{3}{5}x^{2} - x + \frac{1}{5}\right) + \left(-x^{2} + \frac{3}{8}x - \frac{8}{15}\right)
= \frac{3}{2}x^{3} - \frac{5}{4}x^{3} - \frac{1}{4}x^{2} + \frac{3}{5}x^{2} - x^{2} - x + \frac{3}{8}x + \frac{5}{3} + \frac{1}{5} - \frac{8}{15}
= \frac{1}{4}x^{3} - \frac{13}{20}x^{2} - \frac{5}{8}x + \frac{4}{3}$$

********* END *******