Exercise 6A

Q1

**Answer :**

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

(ii)

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

(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:

$\frac{2}{3}a - \frac{4}{5}b + \frac{3}{5}c + \left(-\frac{3}{4}a - \frac{5}{2}b + \frac{2}{3}c\right) + \frac{5}{2}a + \frac{7}{4}b - \frac{5}{6}c$

$b - \frac{5}{2}b + \frac{7}{4}b + \frac{3}{5}c + \frac{2}{3}c - \frac{5}{6}c$

$= \frac{(8-9+30)a}{12} + \frac{(-16-50+35)b}{20} + \frac{(18+20-25)c}{30}$

$= \frac{29}{12}a - \frac{31}{20}b + \frac{13}{30}c$

(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 *********