

$$109 \textcircled{a} \quad x=1, y=-\frac{1}{2}, z=\frac{1}{4}$$

$$\begin{aligned} \text{LHS} &= x \times (y \times z) \\ &= 1 \times \left(-\frac{1}{2} \times \frac{1}{4}\right) \\ &= 1 \times -\frac{1}{8} \\ &= -\frac{1}{8} \end{aligned}$$

$$\begin{aligned} \text{RHS} &= (x \times y) \times z \\ &= \left(1 \times -\frac{1}{2}\right) \times \frac{1}{4} \\ &= -\frac{1}{2} \times \frac{1}{4} \\ &= -\frac{1}{8} \end{aligned}$$

$$\therefore x \times (y \times z) = (x \times y) \times z$$

$$109 \textcircled{b} \quad x=\frac{2}{3}, y=-\frac{3}{7}, z=\frac{1}{2}$$

$$\begin{aligned} \text{LHS} &= x \times (y \times z) \\ &= \frac{2}{3} \times \left(-\frac{3}{7} \times \frac{1}{2}\right) \\ &= \frac{2}{3} \times -\frac{3}{14} \\ &= -\frac{1}{7} \end{aligned}$$

$$\begin{aligned} \text{RHS} &= (x \times y) \times z \\ &= \left(\frac{2}{3} \times -\frac{3}{7}\right) \times \frac{1}{2} \\ &= -\frac{2}{7} \times \frac{1}{2} \\ &= -\frac{1}{7} \end{aligned}$$

$$\therefore x \times (y \times z) = (x \times y) \times z$$

$$109 \textcircled{c} \quad x=-\frac{2}{7}, y=-\frac{5}{6}, z=\frac{1}{4}$$

$$\begin{aligned} \text{LHS} &= x \times (y \times z) \\ &= -\frac{2}{7} \times \left(-\frac{5}{6} \times \frac{1}{4}\right) \\ &= -\frac{2}{7} \times -\frac{5}{24} \\ &= \frac{5}{84} \end{aligned}$$

$$\begin{aligned} &(x \times y) \times z \\ &= \left(-\frac{2}{7} \times -\frac{5}{6}\right) \times \frac{1}{4} \\ &= \frac{5}{21} \times \frac{1}{4} \\ &= \frac{5}{84} \end{aligned}$$

$$x \times (y \times z)$$

$$= (x \times y) \times z$$