

$$\begin{aligned}7\text{(iii)} \quad & 153^2 - 147^2 \\ &= (153 - 147)(153 + 147) \\ &= 6 \times 300 \\ &= 1800\end{aligned}$$

$$\begin{aligned}7\text{(iv)} \quad & 12.1^2 - 7.9^2 \\ &= (12.1 + 7.9)(12.1 - 7.9) \\ &= 20 \times 4.2 \\ &= 84\end{aligned}$$

$$\begin{aligned}8\text{(i)} \quad & 103 \times 104 \\ &= (100 + 3)(100 + 4) \\ &= 100^2 + (3 + 4)100 + 3 \times 4 \\ &= 10000 + 700 + 12 \\ &= 10712\end{aligned}$$

$$\begin{aligned}8\text{(ii)} \quad & 5.1 \times 5.2 \\ &= (5 + .1)(5 + .2) \\ &= 5^2 + (.1 + .2)5 + .1 \times .2 \\ &= 25 + 1.5 + 0.02 \\ &= 26.52\end{aligned}$$