



$$\begin{aligned}
 1 \text{ (viii)} \quad & a^4 + 2a^2b^2 + b^4 \\
 &= (a^2)^2 + 2 \times a^2 \times b^2 + (b^2)^2 \\
 &= (a^2 + b^2)^2 \\
 &= (a^2 + b^2)(a^2 + b^2)
 \end{aligned}$$

$$[\because a^2 + 2ab + b^2 = (a+b)^2]$$

$$\begin{aligned}
 2 \text{ (i)} \quad & 4p^2 - 9q^2 \\
 &= (2p)^2 - (3q)^2 \\
 &= (2p - 3q)(2p + 3q) \quad [\because a^2 - b^2 = (a-b)(a+b)]
 \end{aligned}$$

$$\begin{aligned}
 2 \text{ (ii)} \quad & 63a^2 - 112b^2 \\
 &= 7(9a^2 - 16b^2) \\
 &= 7[(3a)^2 - (4b)^2] \\
 &= 7(3a - 4b)(3a + 4b) \quad [\because a^2 - b^2 = (a-b)(a+b)]
 \end{aligned}$$

$$\begin{aligned}
 2 \text{ (iii)} \quad & 49x^2 - 36 \\
 &= (7x)^2 - 6^2 \\
 &= (7x - 6)(7x + 6) \quad [\because a^2 - b^2 = (a-b)(a+b)]
 \end{aligned}$$

$$\begin{aligned}
 2 \text{ (iv)} \quad & 16x^5 - 144x^3 \\
 &= 16x^3(x^2 - 9) \\
 &= 2^4x^3(x^2 - 3^2) \\
 &= 2^4x^3(x - 3)(x + 3) \quad [\because a^2 - b^2 = (a-b)(a+b)]
 \end{aligned}$$