

1.6

$$\begin{aligned} 1) \quad \left(\sqrt{10 + \sqrt{2}} + \sqrt{10 - \sqrt{2}} \right)^2 &= 10 + \sqrt{2} + 2\sqrt{(10 + \sqrt{2})(10 - \sqrt{2})} + 10 - \sqrt{2} \\ &= 20 + 2\sqrt{10^2 - (\sqrt{2})^2} \\ &= 20 + 2\sqrt{98} \\ &= 20 + 2 \cdot 7\sqrt{2} \\ &= 20 + 14\sqrt{2} \end{aligned}$$

$$\text{Donc } \sqrt{10 + \sqrt{2}} + \sqrt{10 - \sqrt{2}} = \sqrt{20 + 14\sqrt{2}}$$

$$\begin{aligned} 2) \quad \left(\sqrt{5 + \sqrt{21}} + \sqrt{5 - \sqrt{21}} \right)^2 &= 5 + \sqrt{21} + 2\sqrt{(5 + \sqrt{21})(5 - \sqrt{21})} + 5 - \sqrt{21} \\ &= 10 + 2\sqrt{5^2 - (\sqrt{21})^2} \\ &= 10 + 2\sqrt{4} = 10 + 2 \cdot 2 \\ &= 14 \end{aligned}$$

$$\text{D'où } \sqrt{5 + \sqrt{21}} + \sqrt{5 - \sqrt{21}} = \sqrt{14}$$