

1.7

$$\begin{aligned}
 1) \quad \frac{18}{4 - \sqrt{7}} &= \frac{18(4 + \sqrt{7})}{(4 - \sqrt{7})(4 + \sqrt{7})} = \frac{72 + 18\sqrt{7}}{4^2 - (\sqrt{7})^2} \\
 &= \frac{72 + 18\sqrt{7}}{9} = \frac{9(8 + 2\sqrt{7})}{9} = 8 + 2\sqrt{7}
 \end{aligned}$$

$$\begin{aligned}
 2) \quad \frac{-\sqrt{2}}{\sqrt{2} - \sqrt{5}} &= \frac{-\sqrt{2}(\sqrt{2} + \sqrt{5})}{(\sqrt{2} - \sqrt{5})(\sqrt{2} + \sqrt{5})} = \frac{-\sqrt{2}\sqrt{2} - \sqrt{2}\sqrt{5}}{(\sqrt{2})^2 - (\sqrt{5})^2} \\
 &= \frac{-2 - \sqrt{10}}{-3} = \frac{2 + \sqrt{10}}{3}
 \end{aligned}$$

$$\begin{aligned}
 3) \quad \frac{\sqrt{6}}{-\sqrt{3} - \sqrt{2}} &= \frac{\sqrt{6}(-\sqrt{3} + \sqrt{2})}{(-\sqrt{3} - \sqrt{2})(-\sqrt{3} + \sqrt{2})} = \frac{-\sqrt{6}\sqrt{3} + \sqrt{6}\sqrt{2}}{(-\sqrt{3})^2 - (\sqrt{2})^2} \\
 &= \frac{-\sqrt{18} + \sqrt{12}}{3 - 2} = \frac{-3\sqrt{2} + 2\sqrt{3}}{1} = -3\sqrt{2} + 2\sqrt{3}
 \end{aligned}$$

$$\begin{aligned}
 4) \quad \frac{\sqrt{5} - \sqrt{3}}{\sqrt{5} + \sqrt{3}} &= \frac{(\sqrt{5} - \sqrt{3})^2}{(\sqrt{5} + \sqrt{3})(\sqrt{5} - \sqrt{3})} = \frac{(\sqrt{5})^2 - 2\sqrt{5}\sqrt{3} + (\sqrt{3})^2}{(\sqrt{5})^2 - (\sqrt{3})^2} \\
 &= \frac{5 - 2\sqrt{15} + 3}{5 - 3} = \frac{8 - 2\sqrt{15}}{2} = \frac{2(4 - \sqrt{15})}{2} = 4 - \sqrt{15}
 \end{aligned}$$

$$\begin{aligned}
 5) \quad \frac{5\sqrt{3} - 3\sqrt{5}}{\sqrt{5} - \sqrt{3}} &= \frac{(5\sqrt{3} - 3\sqrt{5})(\sqrt{5} + \sqrt{3})}{(\sqrt{5} - \sqrt{3})(\sqrt{5} + \sqrt{3})} \\
 &= \frac{5\sqrt{3}\sqrt{5} + 5\sqrt{3}\sqrt{3} - 3\sqrt{5}\sqrt{5} - 3\sqrt{5}\sqrt{3}}{(\sqrt{5})^2 - (\sqrt{3})^2} \\
 &= \frac{5\sqrt{15} + 15 - 15 - 3\sqrt{15}}{5 - 3} = \frac{2\sqrt{15}}{2} = \sqrt{15}
 \end{aligned}$$

$$\begin{aligned}
 6) \quad \frac{7\sqrt{5} + 5\sqrt{7}}{\sqrt{7} + \sqrt{5}} &= \frac{(7\sqrt{5} + 5\sqrt{7})(\sqrt{7} - \sqrt{5})}{(\sqrt{7} + \sqrt{5})(\sqrt{7} - \sqrt{5})} \\
 &= \frac{7\sqrt{5}\sqrt{7} - 7\sqrt{5}\sqrt{5} + 5\sqrt{7}\sqrt{7} - 5\sqrt{7}\sqrt{5}}{(\sqrt{7})^2 - (\sqrt{5})^2} \\
 &= \frac{7\sqrt{35} - 35 + 35 - 5\sqrt{35}}{7 - 5} = \frac{2\sqrt{35}}{2} = \sqrt{35}
 \end{aligned}$$