

$$\begin{aligned} \underline{6a} \quad (\sqrt{3} + 2\sqrt{2})(4\sqrt{3} - 8\sqrt{2}) &= 4\sqrt{9} - \cancel{8\sqrt{6}} + \cancel{8\sqrt{6}} - 16\sqrt{4} = \\ &= 12 - 32 = -20 \end{aligned}$$

$$\begin{aligned} \underline{6b} \quad (2\sqrt{5} - 4\sqrt{2})(2\sqrt{2} + \sqrt{5}) &= \cancel{4\sqrt{10}} + 2\sqrt{25} - 8\sqrt{4} - \cancel{4\sqrt{10}} = \\ &= 10 - 16 = -6 \end{aligned}$$

$$\begin{aligned} \underline{6c} \quad (2\sqrt{3} - 3\sqrt{2})(\sqrt{2} + \sqrt{3}) - (4 - \sqrt{6}) &= \\ = \cancel{2\sqrt{6}} + 2\sqrt{9} - 3\sqrt{4} - \cancel{3\sqrt{6}} - 4 + \sqrt{6} &= 6 - 6 - 4 = -4 \end{aligned}$$

$$\begin{aligned} \underline{6d} \quad (\sqrt{5} + 2\sqrt{3})(2\sqrt{5} - \sqrt{3}) + (6 - 3\sqrt{15}) &= \\ = 2\sqrt{25} - \cancel{\sqrt{15}} + \cancel{4\sqrt{15}} - 2\sqrt{9} + 6 - \cancel{3\sqrt{15}} &= \\ = 10 - 6 + 6 = 10 \end{aligned}$$

$$\begin{aligned} \underline{7a} \quad -5x^2 + 3x(x-1) + (2x-1)(x+3) &= \\ = -\cancel{5x^2} + \cancel{3x^2} - 3x + \cancel{2x^2} + 6x - x - 3 &= \\ = 2x - 3 \end{aligned}$$

$$\begin{aligned} \underline{7b} \quad 3y^2 - 2x(x+2y) - (x-y)(2x+y) &= \\ = 3y^2 - 2x^2 - 4xy - (2x^2 + xy - 2xy - y^2) &= \\ = 3y^2 - 2x^2 - 4xy - 2x^2 + xy + y^2 &= \\ = -4x^2 + 4y^2 - 3xy \end{aligned}$$