1.

$$\left(\sqrt{4}-\sqrt{4}\right)\left(\sqrt{6}-\sqrt{9}\right) = 0 \times \left(\sqrt{6}-\sqrt{9}\right)$$
$$= 0$$

2.

$$\left(\sqrt{9}-\sqrt{6}\right)\left(\sqrt{8}-\sqrt{6}\right) = \sqrt{9}\times\sqrt{8}-\sqrt{9}\times\sqrt{6}-\sqrt{6}\times\sqrt{8}+\sqrt{6}\times\sqrt{6}$$
$$= \sqrt{9\times 8}-\sqrt{9\times 6}-\sqrt{6\times 8}+\sqrt{6\times 6}$$
$$= \sqrt{72}-\sqrt{54}-\sqrt{48}+6$$
$$= 6\sqrt{2}-3\sqrt{6}-4\sqrt{3}+6$$
$$= 6+6\sqrt{2}-4\sqrt{3}-3\sqrt{6}$$

3.

$$\left(\sqrt{6}+\sqrt{6}\right)\left(\sqrt{6}-\sqrt{3}\right) = \sqrt{6}\times\sqrt{6}-\sqrt{6}\times\sqrt{3}+\sqrt{6}\times\sqrt{6}-\sqrt{6}\times\sqrt{3}$$
$$= \sqrt{6\times 6}-\sqrt{6\times 3}+\sqrt{6\times 6}-\sqrt{6\times 3}$$
$$= 6-\sqrt{18}+6-\sqrt{18}$$
$$= 6-3\sqrt{2}+6-3\sqrt{2}$$
$$= 6+6-3\sqrt{2}-3\sqrt{2}$$
$$= 12-6\sqrt{2}$$