

### 1. Löse die Klammer auf

$$\sqrt{2} * (\sqrt{3} + \sqrt{2}) = \sqrt{6} + 2$$

$$\sqrt{5} * (\sqrt{8} - \sqrt{3}) = \sqrt{40} - \sqrt{15}$$

$$(\sqrt{3} + \sqrt{2})(\sqrt{3} - \sqrt{2}) = 3 - 2 = 1 \quad \text{(Binomische Formel)}$$

$$(\sqrt{8} + \sqrt{32}) : \sqrt{2} = \sqrt{4} + \sqrt{16} = 2 + 4 = 6$$

$$(\sqrt{3} + \sqrt{5})^2 = 3 + 2\sqrt{15} + 5 = 8 + 2\sqrt{15} \quad \text{(Binomische Formel)}$$

$$(\sqrt{7} - \sqrt{3})^2 = 7 - 2\sqrt{21} + 3 = 10 - 2\sqrt{21} \quad \text{(Binomische Formel)}$$

$$(\sqrt{2} + \sqrt{3})(\sqrt{8} - \sqrt{3}) = \sqrt{2}\sqrt{8} - \sqrt{2}\sqrt{3} + \sqrt{3}\sqrt{8} - \sqrt{3}\sqrt{3} = 1 - \sqrt{6} + \sqrt{24}$$

### 2. Löse ohne Taschenrechner

$$\sqrt{9} = 3$$

$$\sqrt{64} = 8$$

$$\sqrt{49} = 7$$

$$\sqrt{36} = 6$$

$$\sqrt{121} = 11$$

$$\sqrt{225} = 15$$

$$\sqrt{289} = 17$$

$$\sqrt{144} = 12$$

$$\sqrt{361} = 19$$

$$\sqrt{400} = 20$$

$$\sqrt{169} = 13$$

$$\sqrt{1.000.000} = 1000$$

### 3. Rationalisiere den Nenner

$$\frac{3}{\sqrt{2}} = \frac{3\sqrt{2}}{\sqrt{2}\sqrt{2}} = \frac{3\sqrt{2}}{2}$$

$$\frac{9\sqrt{2}}{\sqrt{3}} = \frac{9\sqrt{2}\sqrt{3}}{\sqrt{3}\sqrt{3}} = \frac{9\sqrt{6}}{3} = 3\sqrt{6}$$

$$\frac{1}{\sqrt{7+2}} = \frac{\sqrt{7-2}}{(\sqrt{7+2})(\sqrt{7-2})} = \frac{\sqrt{7-2}}{7-4} = \frac{\sqrt{7-3}}{3} = \frac{1}{3}\sqrt{7} - 1 \quad \text{(Binomische Formel)}$$

$$\frac{\sqrt{3}}{\sqrt{27}} = \frac{1}{\sqrt{9}} = \frac{1}{3}$$

$$\frac{\sqrt{2}}{\sqrt{5}-\sqrt{2}} = \frac{\sqrt{2}(\sqrt{5}+\sqrt{2})}{(\sqrt{5}-\sqrt{2})(\sqrt{5}+\sqrt{2})} = \frac{\sqrt{10}+2}{5-2} = \frac{\sqrt{10}+2}{3}$$