

1. a)  $\sqrt{4 \cdot 36} = \underline{\underline{12}}$   
 b)  $\sqrt{25 \cdot 49} = \underline{\underline{35}}$   
 c)  $\sqrt{81 \cdot 121} = \underline{\underline{99}}$   
 d)  $\sqrt{169 \cdot 49} = \underline{\underline{91}}$   
 e)  $\sqrt{324 \cdot 16} = \underline{\underline{72}}$   
 f)  $\sqrt{225 \cdot 25} = \underline{\underline{75}}$
2. a)  $\sqrt{250'000} = \sqrt{25 \cdot 10'000} = 5 \cdot 100 = \underline{\underline{500}}$   
 b)  $\sqrt{640'000} = \sqrt{64 \cdot 10'000} = 8 \cdot 100 = \underline{\underline{800}}$   
 c)  $\sqrt{1'440'000} = \sqrt{144 \cdot 10'000} = 12 \cdot 100 = \underline{\underline{1'200}}$
3. a)  $\sqrt{0,000\ 324} = \sqrt{\frac{324}{1'000'000}} = \frac{18}{1000} = \frac{9}{500} = \underline{\underline{0,018}}$   
 b)  $\sqrt{0,000\ 625} = \sqrt{\frac{625}{1'000'000}} = \frac{25}{1000} = \frac{1}{40} = \underline{\underline{0,025}}$   
 c)  $\sqrt{0,000\ 009} = \sqrt{\frac{9}{1'000'000}} = \frac{3}{1000} = \underline{\underline{0,003}}$   
 d)  $\sqrt{0,000\ 121} = \sqrt{\frac{121}{1'000'000}} = \frac{11}{1000} = \underline{\underline{0,011}}$
4. a)  $\sqrt{180} : \sqrt{5} = \sqrt{180 : 5} = \sqrt{36} = \underline{\underline{6}}$   
 b)  $\sqrt{52} : \sqrt{0,13} = \sqrt{52 : 0,13} = \sqrt{400} = \underline{\underline{20}}$
5. a)  $\sqrt{3\frac{1}{16}} = \sqrt{\frac{49}{16}} = \frac{7}{4} = \underline{\underline{1,75}}$   
 b)  $\sqrt{\frac{5y^2}{16}} = \sqrt{\frac{y^2 \cdot 5}{16}} = \frac{y \cdot \sqrt{5}}{4}$   
 c)  $\sqrt{\frac{121t^4}{4u^2}} = \frac{11t^2}{2u}$   
 d)  $\sqrt{\frac{x^{10}}{169y^{12}}} = \frac{x^5}{13y^6}$

6. a)  $b \cdot \sqrt{3b} = \underline{\underline{\sqrt{3b^3}}}$
- b)  $3u \cdot \sqrt{5u} = \underline{\underline{\sqrt{45u^3}}}$
- c)  $u^2 \cdot \sqrt{u} = \underline{\underline{\sqrt{u^5}}}$
- d)  $5s^2 \cdot \sqrt{s} = \underline{\underline{\sqrt{25s^5}}}$
- e)  $\frac{1}{2}s \cdot \sqrt{5s} = \underline{\underline{\sqrt{1,25s^3}}}$
- f)  $\frac{3}{4}v \cdot \sqrt{uv} = \underline{\underline{\sqrt{\frac{9}{16}uv^3}}}$
7. a)  $\sqrt{8} = \sqrt{4 \cdot 2} = \underline{\underline{2 \cdot \sqrt{2}}}$
- b)  $\sqrt{12} = \sqrt{4 \cdot 3} = \underline{\underline{2 \cdot \sqrt{3}}}$
- d)  $\sqrt{20} = \sqrt{4 \cdot 5} = \underline{\underline{2 \cdot \sqrt{5}}}$
- e)  $\sqrt{24} = \sqrt{4 \cdot 6} = \underline{\underline{2 \cdot \sqrt{6}}}$
- f)  $\sqrt{98} = \sqrt{49 \cdot 2} = \underline{\underline{7 \cdot \sqrt{2}}}$
- g)  $\sqrt{7x^2} = \sqrt{x^2 \cdot 7} = \underline{\underline{x \cdot \sqrt{7}}}$
- h)  $\sqrt{3y^3} = \sqrt{y^2 \cdot 3y} = \underline{\underline{y \cdot \sqrt{3y}}}$
- i)  $\sqrt{0,25b} = \sqrt{0,25 \cdot b} = \underline{\underline{0,5 \cdot \sqrt{b}}}$
- j)  $\sqrt{\frac{s}{4}} = \sqrt{\frac{1}{4} \cdot s} = \underline{\underline{0,5 \cdot \sqrt{s}}}$
- k)  $\sqrt{\frac{2a^2}{9}} = \sqrt{\frac{a^2}{9} \cdot 2} = \frac{a}{3} \cdot \sqrt{2} = \underline{\underline{\frac{a \cdot \sqrt{2}}{3}}}$
8. a)  $\frac{1}{\sqrt{a}} = \frac{1 \cdot \sqrt{a}}{\sqrt{a} \cdot \sqrt{a}} = \underline{\underline{\frac{\sqrt{a}}{a}}}$
- b)  $\frac{5}{\sqrt{c}} = \frac{5 \cdot \sqrt{c}}{\sqrt{c} \cdot \sqrt{c}} = \underline{\underline{\frac{5 \cdot \sqrt{c}}{c}}}$
- c)  $\frac{10}{\sqrt{5e}} = \frac{10 \cdot \sqrt{5e}}{\sqrt{5e} \cdot \sqrt{5e}} = \frac{10 \cdot \sqrt{5e}}{5e} = \underline{\underline{\frac{2 \cdot \sqrt{5e}}{e}}}$
- d)  $\frac{4pq}{\sqrt{2p}} = \frac{4pq \cdot \sqrt{2p}}{\sqrt{2p} \cdot \sqrt{2p}} = \frac{4pq \cdot \sqrt{2p}}{2p} = \underline{\underline{2q \cdot \sqrt{2p}}}$