תרגול פסיכומטרי שורשים - פתרונות

1. $\sqrt[4]{7^3}\cdot\sqrt[8]{7^{11}}=7^{\frac{3}{4}}\cdot 7^{\frac{11}{8}}=7^{\frac{6}{8}}\cdot 7^{\frac{11}{8}}=7^{\frac{6}{8}+\frac{11}{8}}=7^{\frac{17}{8}}=\sqrt[8]{7^{17}}$

2. $\frac{x^{\frac{3}{4}}}{x^{\frac{1}{2}}}=\frac{x^{\frac{3}{4}}}{x^{\frac{2}{4}}}=x^{\frac{3}{4}-\frac{2}{4}}=x^{\frac{1}{4}}=\sqrt[4]{x}$

3. $\sqrt[3]{A^2}\cdot\left(\sqrt[3]{B}\right)^2=\sqrt[3]{A^2}\cdot\left(B^{\frac{1}{3}}\right)^2=A^{\frac{2}{3}}\cdot B^{\frac{2}{3}}=(AB)^{\frac{2}{3}}=\sqrt[3]{(AB)^2}$

4. $\sqrt[6]{x\cdot x^2\cdot x^3}=\sqrt[6]{x^1\cdot x^2\cdot x^3}=\sqrt[6]{x^{1+2+3}}=\sqrt[6]{x^6}=x^{\frac{6}{6}}=x^1=x$

5. $\left(x^{\frac{1}{2}}\right)^{\frac{1}{3}}=x^{\frac{1}{2}\cdot\frac{1}{3}}=x^{\frac{1}{6}}=\sqrt[6]{x}$

6. $\frac{A^2\cdot B^3}{B^5\cdot A^4}=\frac{A^2\cdot B^3}{A^4\cdot B^5}=A^{2-4}\cdot B^{3-5}=A^{-2}\cdot B^{-2}=(A\cdot B)^{-2}=\frac{1}{(A\cdot B)^2}$

7. $\frac{x^{\frac{1}{4}}\cdot y^{\frac{5}{6}}}{x^{\frac{3}{4}}\cdot y^{\frac{1}{3}}}=x^{\frac{1}{4}-\frac{3}{4}}\cdot y^{\frac{5}{6}-\frac{1}{3}}=x^{\frac{1}{4}-\frac{3}{4}}\cdot y^{\frac{5}{6}-\frac{2}{6}}=x^{-\frac{2}{4}}\cdot y^{\frac{3}{6}}=x^{-\frac{1}{2}}\cdot y^{\frac{1}{2}}=\frac{y^{\frac{1}{2}}}{x^{\frac{1}{2}}}=\frac{\sqrt{y}}{\sqrt{x}}=\sqrt{\frac{y}{x}}$

8. $x\cdot x^{(-2)}\cdot x^3\cdot x^{(-4)}=x^1\cdot x^{(-2)}\cdot x^3\cdot x^{(-4)}=x^{1-2+3-4}=x^{(-2)}=\frac{1}{x^2}$