VERSION 44 $\quad 44 = 2^2 \cdot 11$

$$\sqrt{44x^7y^{-18}} = \sqrt{4}\sqrt{11}\sqrt{x^6}\sqrt{x^1}\sqrt{y^{-18}}$$

$$= 2^1\sqrt{11^1}\, x^{6/2}\sqrt{x^1}\, y^{-18/2}$$

$$= 2^1\sqrt{11^1}\, x^3\sqrt{x^1}\, y^{-9}$$

$$= 2^1 x^3 y^{-9}\sqrt{11^1 x^1}$$

$$= \boxed{\frac{2^1 x^3\sqrt{11x}}{y^9}}$$

$$\sqrt{44x^7y^{-8}} = \sqrt{2^2\cdot 11^1 x^7 y^{-18}} = 2^{2/2}\, 11^{1/2}\, x^{7/2}\, y^{-18/2}$$

$$= 2^1\, 11^{1/2}\, x^{3\frac{1}{2}}\, y^{-9} = 2^1\, 11^{\frac{1}{2}} x^{3+\frac{1}{2}} y^{-9}$$

$$= 2^1\, 11^{1/2} x^3 x^{\frac{1}{2}} y^{-9} = 2^1 x^3 y^{-9}\cdot 11^{1/2} x^{\frac{1}{2}}$$

$$= \frac{2^1 x^3\sqrt{11^1 x^1}}{y^9} = \boxed{\frac{2x^3\sqrt{11x}}{y^9}}$$

$$\sqrt{44x^7y^{-18}} = \sqrt{\frac{44x^7}{y^{18}}} = \frac{\sqrt{44}}{1}\frac{1}{\sqrt{y^{18}}}\cdot\frac{\sqrt{x^7}}{1}$$

$$= \frac{\sqrt{4}\sqrt{11}}{1}\cdot\frac{1}{y^{18/2}}\cdot\frac{\sqrt{x^6}\sqrt{x^1}}{1} = \frac{2\sqrt{11}}{1}\cdot\frac{1}{y^9}\,\frac{x^{6/2}\sqrt{x^1}}{1}$$

$$= \frac{2\sqrt{11}}{1}\cdot\frac{1}{y^9}\cdot\frac{x^3\sqrt{x}}{1} = \boxed{\frac{2x^3\sqrt{11x}}{y^9}}$$

VERSION 44 $44 = 2^2 \cdot 11^1$

$$\sqrt[3]{44x^7y^{-18}} = \sqrt[3]{44}\sqrt[3]{x^7}\sqrt[3]{y^{-18}}$$

$$= \sqrt[3]{44}\sqrt[3]{x^6}\sqrt[3]{x^1}\, y^{-18/3}$$

$$= \sqrt[3]{44}\, x^{6/3}\sqrt[3]{x^1}\, y^{-6}$$

$$= \sqrt[3]{44}\, x^2\sqrt[3]{x^1}\, y^{-6}$$

$$= \boxed{\frac{x^2\sqrt[3]{44x}}{y^6}}$$

$$\sqrt[3]{44x^7y^{-18}} = \sqrt[3]{2^2 11^1 x^7 y^{-18}} = 2^{2/3}11^{1/3}x^{7/3}y^{-18/3}$$

$$= 2^{2/3}11^{1/3}x^{2\frac{1}{3}}y^{-6} = 2^{2/3}11^{1/3}x^2x^{\frac{1}{3}}y^{-6}$$

$$= x^2y^{-6}2^{2/3}11^{1/3}x^{1/3}$$

$$= \frac{x^2}{y^6}\cdot\sqrt[3]{2^2}\sqrt[3]{11^1}\sqrt[3]{x}$$

$$= \frac{x^2\sqrt[3]{44x}}{y^6}$$

VERSION 44

$$\frac{1}{\sqrt{14}} = \frac{1}{\sqrt{14}}\frac{\sqrt{14}}{\sqrt{14}} = \frac{\sqrt{14}}{\sqrt{14^2}} = \frac{\sqrt{14}}{14^{2/2}} = \frac{\sqrt{14}}{14}$$

$$\frac{1}{\sqrt{14}} = \frac{1}{\sqrt{14}}\frac{\sqrt{14}}{\sqrt{14}} = \frac{1\sqrt{14}}{\sqrt{196}} = \frac{1\sqrt{14}}{14}$$

$$\frac{8}{\sqrt{24}} = \frac{8}{\sqrt{4}\sqrt{6}} = \frac{8}{2\sqrt{6}} = \frac{8}{2}\cdot\frac{1}{\sqrt{6}} = \frac{4}{1}\frac{1}{\sqrt{6}}$$

$$= \frac{4}{\sqrt{6}} = \frac{4}{\sqrt{6}}\frac{\sqrt{6}}{\sqrt{6}} = \frac{4\sqrt{6}}{\sqrt{36}} = \frac{4\sqrt{6}}{6} = \frac{4}{6}\sqrt{6}$$

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

$$\frac{8}{\sqrt{24}} = \frac{2^3}{\sqrt{2^3\cdot 3^1}} = \frac{2^3}{2^{3/2}3^{1/2}} = \frac{2^{3-\frac{3}{2}}}{1}\frac{1}{3^{1/2}} = \frac{2^{\frac{3}{2}}}{1}\cdot\frac{1}{3^{\frac{1}{2}}}$$

$$= \frac{2^{1\frac{1}{2}}}{1}\cdot\frac{1}{3^{\frac{1}{2}}} = \frac{2^{1+\frac{1}{2}}}{1}\cdot\frac{1}{3^{\frac{1}{2}}} = \frac{2^1 2^{\frac{1}{2}}}{1}\cdot\frac{1}{3^{\frac{1}{2}}}$$

$$= \frac{2}{1}\cdot\sqrt{\frac{2}{3}} = \frac{2\sqrt{2}}{1}\cdot\frac{1}{\sqrt{3}}\frac{\sqrt{3}}{\sqrt{3}} = \frac{2\sqrt{6}}{\sqrt{9}} = \frac{2\sqrt{6}}{3}$$

$$\frac{5}{\sqrt[3]{25}} = \frac{5}{\sqrt[3]{25}} \cdot \frac{\sqrt[3]{25^2}}{\sqrt[3]{25^2}} = \frac{5\sqrt[3]{25^2}}{\sqrt[3]{25^3}} = \frac{5\sqrt[3]{625}}{25^{3/3}}$$

$$= \frac{5}{25} \cdot \frac{\sqrt[3]{625}}{1} = \frac{1}{5} \cdot \frac{\sqrt[3]{125}\sqrt[3]{5}}{1} = \frac{1}{5} \cdot \frac{5}{1} \frac{\sqrt[3]{5}}{1}$$

$$= \frac{5}{5} \frac{\sqrt[3]{5}}{1} = 1 \cdot \sqrt[3]{5} = \boxed{\sqrt[3]{5}}$$

$$\frac{5}{\sqrt[3]{25}} = \frac{5^1}{\sqrt[3]{5^2}} = \frac{5^1}{5^{2/3}} = 5^{1-2/3} = 5^{1/3} = \boxed{\sqrt[3]{5^1}}$$