Please do the problems for Simplifying Radicals in 1B of the online book this way.

Example 1. Simplify $\sqrt[3]{72} x^3$.

Factor 72 and write $\sqrt[3]{72}$ as $6\sqrt{2}$. The whole answer is $6\sqrt{2} x^{3/2}$. Note that no absolute value is needed since $x$ must be nonnegative to take its square root.

Example 2. Simplify $\sqrt[3]{54} x y^4$.

Factor 54 and write $\sqrt[3]{54}$ as $3\sqrt{2}$. The answer is $3\sqrt{2} x^{1/3} y^{4/3}$.

Example 3. Simplify $\sqrt[4]{\frac{80 x^2}{y^4}}$. Answer $2\sqrt[4]{\frac{x^{1/2}}{|y|}}$. Note the absolute value of $y$ since $y$ could be negative in the original expression but the answer must be positive. $\sqrt[4]{y^4} = |y|$.