8.3 Problems (6 pt Problems)

1. Simplify $2\sqrt[3]{48x^9y^{18}z^5}$.
2. Multiply and simplify $(x-3-\sqrt{2})(x-3+\sqrt{2})$.
3. Simplify
$$\frac{1-\sqrt{2}}{1+\sqrt{3}}-\frac{2-\sqrt{2}}{1-2\sqrt{3}}$$
(write using at most three radicals).
4. Simplify and write your answer using radical notation (assume x and y are positive):
$$\sqrt{\frac{3\sqrt[3]{x^2y^2}}{4\sqrt[3]{3x^2\sqrt{3x}}}}.$$

8.4 Exercises

1. Evaluate exactly and estimate without a calculator at 4: $\sqrt[3]{10x^2}$.
2. Simplify $3\sqrt[4]{48x^9y^{18}z^6}$.
3. Evaluate $8^{2/3}$.
4. Simplify $\left(2\sqrt{\frac{2x^4y^3}{45z^7}}\right)^3$.
5. Simplify $5\sqrt{20}-3\sqrt{45}$.
6. Multiply and simplify $(7\sqrt{3}+2\sqrt{5})(2\sqrt{3}-3\sqrt{5})$.
7. Multiply and simplify $(\sqrt{3}+4\sqrt{5})(\sqrt{3}-4\sqrt{5})$.
8. Divide and simplify $\dfrac{7\sqrt{3}+2\sqrt{5}}{2\sqrt{3}-3\sqrt{5}}$.
9. Simplify and write your answer using radical notation (assume x and y are positive):
$$\left(\frac{3\sqrt{xy^3}}{4\sqrt[3]{(9x)^2\sqrt{3y}}}\right)^2.$$