

$$\begin{aligned}5\sqrt[3]{9a^2b} \cdot \sqrt[3]{3a^2b^2} &= 5\sqrt[3]{9a^2b \cdot 3a^2b^2} = 5\sqrt[3]{27a^4b^3} \\ &= 5\sqrt[3]{(3)^3(a^3)(a)(b^3)} = 5\sqrt[3]{3^3} \cdot \sqrt[3]{a^3} \cdot \sqrt[3]{a} \cdot \sqrt[3]{b^3} = \\ &5 \cdot 3 \cdot a \cdot b \cdot \sqrt[3]{a} = 15ab\sqrt[3]{a}\end{aligned}$$