

$$\textcircled{1} \sqrt[3]{4x^2y} \cdot \sqrt[3]{6x^4y^5}$$

$$\sqrt[3]{24x^6y^6}$$

$$\sqrt[3]{8x^6y^6} \cdot \sqrt[3]{3}$$

$$2x^2y^2 \cdot \sqrt[3]{3}$$

$$\textcircled{2} \sqrt[4]{2x^2} (3x \sqrt[4]{16x^3} - 4 \sqrt[4]{81x^7})$$

$$3x \sqrt[4]{32x^5} - 4 \sqrt[4]{162x^9}$$

$$3x \sqrt[4]{16x^4} \cdot \sqrt[4]{2x} - 4 \sqrt[4]{81x^8} \cdot \sqrt[4]{2x}$$

$$3x \cdot 2x \cdot \sqrt[4]{2x} - 4 \cdot 3x^2 \cdot \sqrt[4]{2x}$$

$$6x^2 \sqrt[4]{2x} - 12x^2 \sqrt[4]{2x}$$

$$-6x^2 \sqrt[4]{2x}$$

$$\textcircled{3} (\sqrt[3]{2x^2} - 4 \sqrt[3]{2x^2})(2 + \sqrt[3]{24x^8})$$

$$2 \sqrt[3]{2x^2} + \sqrt[3]{48x^{10}} - 8 \sqrt[3]{2x^2} - 4 \sqrt[3]{48x^{10}}$$

$$2 \sqrt[3]{2x^2} + \sqrt[3]{8x^9} \cdot \sqrt[3]{6x} - 8 \sqrt[3]{2x^2} - 4 \sqrt[3]{8x^9} \cdot \sqrt[3]{6x}$$

$$2 \sqrt[3]{2x^2} + 2x^3 \cdot \sqrt[3]{6x} - 8 \sqrt[3]{2x^2} - 4 \cdot 2x^3 \sqrt[3]{6x}$$

$$\underline{2 \sqrt[3]{2x^2}} + \underline{2x^3 \sqrt[3]{6x}} - \underline{8 \sqrt[3]{2x^2}} - \underline{8x^3 \sqrt[3]{6x}}$$

$$-6 \sqrt[3]{2x^2} - 6x^3 \sqrt[3]{6x}$$

$$\textcircled{4} 5\sqrt{3x} - 8\sqrt{8x^7} + 6x^2\sqrt{72x^3}$$

$$5\sqrt{3x} - 8\sqrt{4x^6} \sqrt{2x} + 6x^2 \sqrt{36x^2} \sqrt{2x}$$

$$5\sqrt{3x} - 8 \cdot 2x^3 \sqrt{2x} + 6x^2 \cdot 6x \sqrt{2x}$$

$$5\sqrt{3x} - 16x^3 \sqrt{2x} + 36x^3 \sqrt{2x}$$

$$5\sqrt{3x} + 20x^3 \sqrt{2x}$$

$$\boxed{5} \quad \frac{\sqrt[4]{64x^9}}{\sqrt[4]{4x^6}}$$

$$\sqrt[4]{\frac{64x^9}{4x^6}}$$

$$\sqrt[4]{16x^3}$$

$$\sqrt[4]{16} \cdot \sqrt[4]{x^3}$$

$$2 \sqrt[4]{x^3}$$

$$\boxed{6} \quad \sqrt[4]{8xy^7} \cdot \sqrt[4]{6x^6y^3}$$

$$\sqrt[4]{48x^7y^{10}}$$

$$\sqrt[4]{16x^4y^8} \cdot \sqrt[4]{3x^3y^2}$$

$$2xy^2 \sqrt[4]{3x^3y^2}$$

$$\boxed{7} \quad 2\sqrt[3]{2M^2} (5M\sqrt[3]{4M^2} - 3\sqrt[3]{32M^5})$$

$$10M\sqrt[3]{8M^4} - 6\sqrt[3]{64M^7}$$

$$10M\sqrt[3]{8M^3} \cdot \sqrt[3]{M} - 6\sqrt[3]{64M^6} \cdot \sqrt[3]{M}$$

$$10M \cdot 2M \cdot \sqrt[3]{M} - 6 \cdot 4M^2 \cdot \sqrt[3]{M}$$

$$20M^2\sqrt[3]{M} - 24M^2\sqrt[3]{M}$$

$$-4M^2\sqrt[3]{M}$$

$$\boxed{8} \quad 5A\sqrt[4]{A^2} + 3\sqrt[4]{A^6}$$

$$5A\sqrt[4]{A^2} + 3\sqrt[4]{A^4} \cdot \sqrt[4]{A^2}$$

$$5A\sqrt[4]{A^2} + 3 \cdot A \cdot \sqrt[4]{A^2}$$

$$5A\sqrt[4]{A^2} + 3A\sqrt[4]{A^2}$$

$$8A\sqrt[4]{A^2}$$