

Exponential Worksheet

A. Express each answer in simplest radical form:

$$1. \left(\sqrt[3]{\frac{16x^5}{54y^2}} \right)^2$$

$$2. \left(\sqrt[4]{\frac{27}{4x^2}} \right)^5$$

$$3. \left(\sqrt[5]{\frac{16x^3}{27y^4}} \right)^2$$

$$4. \sqrt[3]{\sqrt[3]{9a^2x^7}}$$

$$5. \sqrt[4]{2\sqrt[3]{16x^3y}}$$

$$6. \sqrt[3]{\sqrt[4]{27x^6y^9}}$$

$$7. \sqrt[3]{2x^5y\sqrt{8x^3y^5}}$$

$$8. \sqrt[4]{27x^2y^3\sqrt[3]{81x^6y^4}}$$

$$9. \frac{\sqrt[3]{4a^2x^4}\sqrt{8a^3x^2}}{\sqrt{2ax^6}\sqrt[3]{8a^4x^2}}$$

$$10. \sqrt[3]{x^2y^4}\sqrt{x^3y^2}$$

$$11. \sqrt[5]{\frac{25x^4y^2}{\sqrt[7]{625x^3y^4}}}$$

$$12. \sqrt[3]{\frac{4x^4\sqrt{y^3}}{6x^2\sqrt{y}}}$$

$$13. \sqrt[5]{3\sqrt{27a^3x}}$$

$$14. \sqrt[4]{9\sqrt[3]{9x^2y^4}}$$

$$15. \sqrt[5]{\frac{\sqrt[3]{a^2b}}{\sqrt{ab}}}$$

$$16. \frac{\sqrt{2a}\sqrt[3]{4a^2b^2}}{\sqrt[6]{16a^4b^3}}$$

$$17. \frac{\sqrt{15x^4y^2}\sqrt[3]{75x^2y^3}}{\sqrt[4]{45x^6y^3}}$$

$$18. \frac{x^{\frac{3}{2}}y^{\frac{5}{4}}z^{\frac{-3}{5}}}{x^{\frac{-7}{4}}y^{\frac{1}{5}}z^{\frac{-7}{2}}}$$

$$19. \sqrt[3]{\sqrt[4]{\sqrt{x^{30}y^{70}z^{36}}}}$$

$$20. \sqrt[5]{x^9\sqrt[3]{x^3y^7}\sqrt{x^5y^3}}$$