DIRECTIONS: Write in exponential form.

1. $\sqrt{a^{-2}b^3}$

$$\frac{b^{3/2}}{a}$$

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

$$\frac{x^2}{y^{4/3}}$$

3. $(\sqrt{a^{-2}b})^5$

$$\frac{b^{5/2}}{a^5}$$

4. $\sqrt[3]{8b^6 c^{-4}}$

$$\frac{2b^2}{c^{4/3}}$$

5. $\sqrt[4]{\dfrac{(16^3)(a^{-2})}{b^6}}$

$$\frac{8}{a^{1/2} b^{3/2}}$$

6. $\dfrac{1}{\sqrt[4]{p^4 q^{-8}}}$

$$\frac{q^2}{p}$$

DIRECTIONS: Express in simplest radical form. In #8-12, you must make the bases be the same.

7. $\left(\sqrt{8}\right)\left(\sqrt[6]{8}\right)$

4

8. $\dfrac{\sqrt[3]{4}}{\sqrt[6]{2}}$

$\sqrt{2}$

9. $\dfrac{\sqrt[5]{27^3}}{\sqrt[5]{9^2}}$

3

10. $\sqrt[6]{8^3} \div \sqrt[6]{4^2}$

$\sqrt[6]{32}$

If you have $2^{5/6}$, 2 doesn't have a 6th root, so take care of $2^5 = 32$.

11. $\sqrt[4]{27} \cdot \sqrt[8]{9}$

3

12. $\sqrt[4]{128} \cdot \sqrt[8]{256}$

$4\sqrt[4]{8}$

If you have $2^{11/4}$, it $= 2^{8/4} * 2^{3/4}$

DIRECTIONS: Simplify each expression. Give answers in exponential form.

13. $\sqrt[3]{a^2} \cdot \sqrt[3]{a^4}$

a^2

14. $\sqrt[4]{x} \cdot \sqrt[6]{x} \div \sqrt[3]{x}$

$x^{1/12}$

15. $\left(\left(b^{\frac{1}{2}}\right)^{\frac{-2}{3}}\right)^{\frac{3}{4}}$

$$\frac{1}{b^{1/4}}$$

16. $a^{\frac{1}{2}}\left(a^{\frac{3}{2}} - 2a^{\frac{1}{2}}\right)$

$a^2 - 2a$