

## WS PC #1 Chapter 6 Review

Simplify.

1)  $\sqrt{245}$

$$15.45$$

2)  $\sqrt[4]{80}$

$$2.99$$

3)  $-8\sqrt[4]{128}$

$$-26.91$$

4)  $6\sqrt[3]{-24}$

$$-17.31$$

Write each expression in exponential form.

5)  $\sqrt[3]{10n}$

$$(10n)^{\frac{1}{3}}$$

6)  $(\sqrt[4]{10b})^3$

$$(10b)^{\frac{3}{4}}$$

Write each expression in radical form.

7)  $(2n)^{\frac{5}{6}}$

$$(\sqrt[6]{2n})^5$$

8)  $(2x)^{\frac{5}{2}}$

$$(\sqrt{2x})^5$$

Simplify.

9)  $(216n^6)^{\frac{5}{3}}$

$$(\sqrt[3]{216n^6})^5$$

$$(6n^2)^5$$

$$7776n^{10}$$

$$\begin{array}{c} \text{nnn} \\ \text{nnn} \end{array}$$

10)  $(81m^6)^{\frac{1}{2}}$

$$\sqrt{81m^6}$$

$$9m^3$$

$$\begin{array}{c} \text{mmmm} \\ \text{mmmm} \end{array}$$

$$11) (8x^9)^{\frac{1}{3}}$$

$$\sqrt[3]{8x^9}$$

$$\boxed{2x^3}$$

Simplify. Your answer should contain only positive exponents.

$$12) 2x^{-1} \cdot 4xy^{-1}$$

$$8y^{-1} = \boxed{\frac{8}{y}}$$

$$13) 4ab^3 \cdot 4a^{-4}$$

$$16a^{-3}b^3 = \boxed{\frac{16b^3}{a^3}}$$

$$14) (m^{-4}n^4)^2$$

$$m^{-8}n^8 = \boxed{\frac{n^8}{m^8}}$$

$$15) (4x)^4$$

$$4^4x^4 = \boxed{256x^4}$$

$$16) \frac{3y^{-4}}{4x^{-1}y^3}$$

$$\frac{3x}{4y^4y^3} = \boxed{\frac{3x}{4y^7}}$$

$$17) \frac{2x^{-4}}{3x^4y^3}$$

$$\frac{2}{3x^4x^4y^3} = \boxed{\frac{2}{3x^8y^3}}$$

$$18) (2x^4y^{-4})^3 \cdot x^3y^2$$

$$2^3x^{12}y^{-12} \cdot x^3y^2$$

$$8x^9y^{-10} = \boxed{\frac{8x^9}{y^{10}}}$$

$$19) x^3 \cdot (2x^{-2}y^{-4})^3$$

$$x^3 \cdot 2^3x^{-6}y^{-12}$$

$$8x^{-3}y^{-12} = \boxed{\frac{8}{x^3y^{12}}}$$

$$20) \frac{(2m^2n^4)^4}{2m^4}$$

$$\frac{2^4m^8n^{16}}{2m^4} = \frac{16m^4n^{16}}{2}$$

$$= \boxed{8m^4n^{16}}$$

$$21) \frac{(x^4y^3)^3}{x}$$

$$\frac{x^{12}y^9}{x} = \boxed{x^{11}y^9}$$

Simplify each expression in rational exponent form.

$$22) x^{\frac{2}{3}} \cdot x^{\frac{4}{3}}$$

$$x^{\frac{8}{3}}$$

add  
exponents

$$23) x^{\frac{5}{4}} \cdot x^{\frac{1}{2}}$$

$$x^{\frac{5}{4}} \cdot x^{\frac{2}{4}}$$

$$x^{\frac{7}{4}}$$

← need same  
denominator

$$24) y^{\frac{1}{3}} \cdot \sqrt[3]{y^2}$$

$$y^{\frac{1}{3}} \cdot y^{\frac{2}{3}}$$

$$y^{\frac{3}{3}} = y^1$$

$$25) y^{\frac{3}{4}} \cdot \sqrt[4]{y^5}$$

$$y^{\frac{3}{4}} \cdot y^{\frac{5}{4}}$$

$$y^{\frac{8}{4}} = y^2$$

$$26) a^{\frac{5}{4}} \cdot \sqrt[4]{a^7}$$

$$a^{\frac{5}{4}} \cdot a^{\frac{7}{4}}$$

$$a^{\frac{12}{4}} = a^3$$

$$27) a^{\frac{1}{2}} \cdot \sqrt{a^5}$$

$$a^{\frac{1}{2}} \cdot a^{\frac{5}{2}}$$

$$a^{\frac{6}{2}} = a^3$$