

## Radicals and Rational Exponents Review

Date \_\_\_\_\_ Period \_\_\_\_\_

**Write each expression in exponential form.**

1)  $\sqrt[6]{2n}$

$(2n)^{\frac{1}{6}}$

2)  $(\sqrt{3x})^3$

$(3x)^{\frac{3}{2}}$

3)  $(\sqrt[3]{5v})^5$

$(5v)^{\frac{5}{3}}$

4)  $(\sqrt[5]{b})^8$

$b^{\frac{8}{5}}$

5)  $(\sqrt{10v})^3$

$(10v)^{\frac{3}{2}}$

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

$p^{\frac{4}{3}}$

**Write each expression in radical form.**

7)  $p^{\frac{4}{3}}$

$(\sqrt[3]{p})^4$

8)  $(4v)^{\frac{2}{3}}$

$(\sqrt[3]{4v})^2$

9)  $(2n)^{\frac{5}{3}}$

$(\sqrt[3]{2n})^5$

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

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

$$11) (5k)^{\frac{1}{2}}$$
$$\sqrt{5k}$$

$$12) k^{\frac{5}{2}}$$
$$(\sqrt{k})^5$$

**Simplify.**

$$13) (125x^6)^{\frac{4}{3}}$$
$$625x^8$$

$$14) (9k^4)^{\frac{1}{2}}$$
$$3k^2$$

$$15) (81x^4)^{\frac{1}{2}}$$
$$9x^2$$

$$16) (16v^4)^{\frac{1}{2}}$$
$$4v^2$$

$$17) (64x^{12})^{\frac{7}{6}}$$
$$128x^{14}$$

$$18) (a^4)^{\frac{1}{2}}$$
$$a^2$$

**Solve each equation. Remember to check for extraneous solutions.**

$$19) \sqrt{3a-13} = \sqrt{2a-6}$$
$$\{7\}$$

$$20) 18 = 9 + \sqrt{n-9}$$
$$\{90\}$$

$$21) \sqrt{-5-x} = \sqrt{-11-2x}$$
$$\{-6\}$$

$$22) \sqrt{6-x} = \sqrt{2x}$$
$$\{2\}$$