Candle Center - Infinite Algebra 2   Name_____

Radicals and Rational Exponents

Date_____ Period____

Write each expression in radical form.

1) $7^{\frac{1}{2}}$

2) $4^{\frac{4}{3}}$

3) $2^{\frac{5}{3}}$

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

5) $6^{\frac{3}{2}}$

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

Write each expression in exponential form.

7) $\left(\sqrt{10}\right)^{3}$

8) $\sqrt[6]{2}$

9) $\left(\sqrt[4]{2}\right)^{5}$

10) $\left(\sqrt[4]{5}\right)^{5}$

11) $\sqrt[3]{2}$

12) $\sqrt[6]{10}$

Write each expression in radical form.

13) $(5x)^{-\frac{5}{4}}$

14) $(5x)^{-\frac{1}{2}}$

15) $(10n)^{\frac{3}{2}}$

16) $a^{\frac{6}{5}}$

17) $(6v)^{1.5}$

18) $m^{-\frac{1}{2}}$

Write each expression in exponential form.

19) $\left(\sqrt[4]{m}\right)^3$

20) $\left(\sqrt[3]{6x}\right)^4$

21) $\sqrt[4]{v}$

22) $\sqrt{6p}$

23) $\left(\sqrt[3]{3a}\right)^4$

24) $\dfrac{1}{\left(\sqrt{3k}\right)^5}$

Simplify.

25) $9^{\frac{1}{2}}$

26) $343^{-\frac{4}{3}}$

27) $1000000^{\frac{1}{6}}$

28) $36^{\frac{3}{2}}$

29) $\left(x^6\right)^{\frac{1}{2}}$

30) $\left(9n^4\right)^{\frac{1}{2}}$

31) $\left(64n^{12}\right)^{-\frac{1}{6}}$

32) $\left(81m^6\right)^{\frac{1}{2}}$

Radicals and Rational Exponents

Write each expression in radical form.

1) $7^{\frac{1}{2}}$

$\sqrt{7}$

2) $4^{\frac{4}{3}}$

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

3) $2^{\frac{5}{3}}$

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

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

$\left(\sqrt[3]{7}\right)^4$

5) $6^{\frac{3}{2}}$

$\left(\sqrt{6}\right)^3$

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

$\sqrt[6]{2}$

Write each expression in exponential form.

7) $\left(\sqrt{10}\right)^3$

$10^{\frac{3}{2}}$

8) $\sqrt[6]{2}$

$2^{\frac{1}{6}}$

9) $\left(\sqrt[4]{2}\right)^5$

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

10) $\left(\sqrt[4]{5}\right)^5$

$5^{\frac{5}{4}}$

11) $\sqrt[3]{2}$

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

12) $\sqrt[6]{10}$

$10^{\frac{1}{6}}$

Write each expression in radical form.

13) $(5x)^{-\frac{5}{4}}$

$\dfrac{1}{\left(\sqrt[4]{5x}\right)^5}$

14) $(5x)^{-\frac{1}{2}}$

$\dfrac{1}{\sqrt{5x}}$

15) $(10n)^{\frac{3}{2}}$

$\left(\sqrt{10n}\right)^3$

16) $a^{\frac{6}{5}}$

$\left(\sqrt[5]{a}\right)^6$

17) $(6v)^{1.5}$

$\left(\sqrt{6v}\right)^3$

18) $m^{-\frac{1}{2}}$

$\dfrac{1}{\sqrt{m}}$

Write each expression in exponential form.

19) $\left(\sqrt[4]{m}\right)^3$

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

20) $\left(\sqrt[3]{6x}\right)^4$

$(6x)^{\frac{4}{3}}$

21) $\sqrt[4]{v}$

$v^{\frac{1}{4}}$

22) $\sqrt{6p}$

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

23) $\left(\sqrt[3]{3a}\right)^4$

$(3a)^{\frac{4}{3}}$

24) $\dfrac{1}{\left(\sqrt{3k}\right)^5}$

$(3k)^{-\frac{5}{2}}$

Simplify.

25) $9^{\frac{1}{2}}$

3

26) $343^{-\frac{4}{3}}$

$\dfrac{1}{2401}$

27) $1000000^{\frac{1}{6}}$

10

28) $36^{\frac{3}{2}}$

216

29) $\left(x^6\right)^{\frac{1}{2}}$

x^3

30) $\left(9n^4\right)^{\frac{1}{2}}$

$3n^2$

31) $\left(64n^{12}\right)^{-\frac{1}{6}}$

$\dfrac{1}{2n^2}$

32) $\left(81m^6\right)^{\frac{1}{2}}$

$9m^3$