Simplify each:

1. $\left(2m^{\frac{2}{3}}n^{\frac{5}{4}}\right)^{6}$

$(2)^{6}(m^{2/3})^{6}(n^{5/4})^{6}$

$64m^{4}n^{15/2}$

2. $\left(9a^{-6}b^{\frac{3}{5}}\right)^{\frac{1}{2}}$

$(9)^{1/2}(a^{-6})^{1/2}(b^{3/5})^{1/2}$

$\frac{3b^{\frac{3}{10}}}{a^{3}}$

Simplify each:

3. $R^{\frac{5}{2}} \cdot R^{\frac{1}{3}} = R^{\frac{17}{6}}$

$\frac{3}{3}\frac{5}{2} + \frac{1}{3}\cdot\frac{2}{2}$ add exponents

$\frac{15}{6} + \frac{2}{6} = \frac{17}{6}$

4. $A^{\frac{5}{6}} \div A^{\frac{3}{4}} = A^{\frac{1}{12}}$

$\frac{5}{6} - \frac{3}{4}$ subtract exponents

$\frac{10}{12} - \frac{9}{12} = \frac{1}{12}$

Simplify each.

5. $\left(\frac{a^{-3}}{a^{11}}\right)^{\frac{1}{4}} = \frac{1}{a^{\frac{7}{2}}}$

$\left(\frac{1}{a^{14}}\right)^{\frac{1}{4}} = \frac{1}{a^{\frac{14}{4}}}$

6. $\left(w^{-\frac{5}{3}}\right)^{3} = \frac{1}{w^{5}}$

Multiply exponents $\frac{-5}{3}\cdot 3$

$= w^{-5} = \frac{1}{w^{5}}$

7. $(-8w^{-6})^{\frac{1}{3}}$

$\left(\frac{-8}{w^{6}}\right)^{1/3}$

$\frac{-8^{1/3}}{w^{2}} = \frac{-2}{w^{2}}$

Now you can do Hwk #14

Sec 7-4
Pages 388-389

Problems: 11, 14, 17, 19, 21, 25, 42, 44, 46, 66, 67, 72

$6^2 = 36$ and $(-6)^2 = 36$

What are the square roots of 36? ± 6

What are the square roots of 81? ± 9

Why are there no real square roots of -36?

How many square roots does any positive number have? 2

$3^4 =$ 81 $(-3)^4 =$ 81

What are the fourth roots of 81? ± 3

What are the fourth roots of 2401? ± 7

Are there any real fourth roots of -256?

How many fourth roots does any positive number have? 2

$5^3 =$ 125 $(-5)^3 =$ -125

How many cube roots does 125 have? 1

Find the cube root of -125 $= -5$

Find the cube root of -512 -8

How many cube roots does any number have? 1

The cube root of any number has what sign? Same sign as the radicand

The number of REAL nth roots of a number

Radicand is	n is even	n is odd
Positive	2	1
Zero	1	1
Negative	0	1