Algebra
Rational Exponent Practice

Name: _____ Block: ____
Date: _____

**Use the problems to answer the following questions**

| Why was the math book sad? | | | |
|---|---|---|---|
| 1 Because | 2 it | 3 had | 4 so |
| 5 many | 6 problems | | |

| How do you know that your dentist studied algebra? | | | |
|---|---|---|---|
| 7 She | 8 said | 9 all | 10 that |
| 11 candy | 12 gave | 13 me | 14 exponential |
| 15 decay | | | |

Answers

| | | | |
|---|---|---|---|
| $g^{2/3}$ that | $\frac{m^2}{p^3}$ it | $a^{10/3}$ candy | $2x^{3/2}$ she |
| $a^{10/9}$ salt | $\frac{1}{z^{1/3}}$ gave | $z^{2/3}$ blue | $\frac{1}{m^{22}}$ exponential |
| $3b^{5/3}$ many | $\frac{y^{2/3}}{9x^2}$ tooth | $n^6$ Because | $b^{18}$ Dinosaur |
| $\frac{x^{5/2}}{y^{9/5}}$ decay | $\frac{1}{2x^{11/3}}$ problems | $\frac{b^{12}}{a^3}$ all | $\frac{y^{1/3}}{4x^{1/2}}$ said |
| $\frac{1}{b^9}$ had | $84x^{4/3}$ me | $\frac{2}{m}$ so | $\frac{x^{1/2}}{y^{3/5}}$ smart |

**implify the following exponential expressions**

1. $(n^4)^{3/2}$

$n^6$

2. $(mp^{-3/2})^2$

$m^2 p^{-3}$ $\quad \frac{m^2}{p^3}$

3. $(b^6)^{-3/2}$ $\quad 3/6 \cdot \frac{-3}{2}$

$b^{-9}$ $\quad \frac{1}{b^9}$

4. $2m^{5/4}m^{3/4}m^{-3}$

$\frac{2m^2}{m^3} = \frac{2}{m}$

5. $3b^{1/3}b^{4/3}$

$3b^{5/3}$

6. $\frac{2x^{-7/3}}{4x^{4/3}}$

$\frac{1}{2x^{4/3}x^{7/3}}$ $\quad \frac{1}{2x^{11/3}}$

7. $\frac{4x^2}{2x^{1/2}}$ $\quad 4/2$

$2x^{3/2}$

8. $\frac{3x^{-1/2}y^{-1/3}}{12y^{-2/3}}$

$\frac{1}{4x^{1/2}} \frac{y^{2/3}}{y^{1/3}}$ $\quad \frac{y^{1/3}}{4x^{1/2}}$

9. $\left(\frac{a^{-1/4}b^{-2/3}}{a^{1/2}b^{-5/3}}\right)^{12}$

$\frac{a^{-3}b^{-8}}{a^6 b^{-20}}$ $\quad \frac{b^{20}}{a^3 a^6 b^8}$ $\quad \frac{b^{12}}{a^9}$

10. $\frac{g^{14/15}}{g^{4/15}}$

$g^{10/15}$ $\quad g^{2/3}$

11. $a^{2/3} \cdot (a^{8/9})^{3 \cdot \frac{8}{9} \cdot \frac{1}{3}}$

$a^{2/3}a^{8/3}$ $\quad a^{10/3}$

12. $z^{4/3} \cdot (z^{-5/6})^{2 \cdot -\frac{5}{6} \cdot 3}$

$z^{4/3}z^{-5/3}$ $\quad \frac{1}{z^{1/3}}$

13. $3x^{1/3} \cdot 7x^{2/3} \cdot (-2x^{1/6})^2$

$(-2)^2 x^{1/3}$

$84x^{4/3}$

14. $\left(\frac{m^{4/9}}{m^{5/3}}\right)^{18}$

$\frac{m^8}{m^{30}}$ $\quad \frac{1}{m^{22}}$

15. $\frac{x^{3/4}y^{-3/5}}{x^{-7/4}y^{6/5}}$

$\frac{x^{3/4}x^{7/4}}{y^{3/5}y^{6/5}}$ $\quad \frac{x^{10/4}}{y^{9/5}}$ $\quad \frac{x^{5/2}}{y^{9/5}}$