

Rational Exponents II

Date _____

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Simplify. Your answer should contain only positive exponents with no fractional exponents in the denominator.

1)
$$\frac{\left(\frac{1}{x^2}\right)^2}{x^{-\frac{3}{2}}x^{\frac{1}{3}}}$$

2)
$$\left(\frac{n^{-\frac{3}{2}}}{\left(\frac{1}{n^3}\right)^2 n^{\frac{1}{2}}}\right)^{-\frac{1}{2}}$$

3)
$$\frac{x^3 x^{\frac{3}{2}}}{(x^{-2})^{-\frac{1}{4}}}$$

4)
$$\left(\frac{m^{-1}}{\left(m^{\frac{4}{3}} m^{\frac{1}{4}}\right)^{-1}}\right)^{-1}$$

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

6)
$$\frac{b^{-\frac{5}{3}}}{\left(b^{-\frac{1}{2}}\right)^3 b^{\frac{1}{4}}}$$

7)
$$\frac{\left(\frac{3}{n^2}\right)^{-\frac{3}{2}} \cdot n}{n^{-\frac{5}{3}}}$$

8)
$$\frac{\left(p^{\frac{1}{2}}\right)^2 p^{-1}}{p^{-1}}$$

9)
$$\left(\frac{y^{\frac{1}{3}} \cdot x^{-4} y^{\frac{4}{3}}}{\left(x^{-1} y^2\right)^{-2}}\right)^{-\frac{2}{3}}$$

10)
$$\frac{\left(xy \cdot x^{-\frac{2}{3}} y^2\right)^{\frac{1}{2}}}{x^{-2}}$$

11)
$$\frac{\left(yx^{-\frac{1}{2}} \cdot y^{-1} \cdot x^2\right)^2}{(x^2)^{\frac{1}{3}}}$$

12)
$$\frac{m^{-1} n^{\frac{5}{3}} \cdot \left(m^{-\frac{1}{2}} n^{-2}\right)^{\frac{1}{3}}}{m^{\frac{1}{2}} n^{-\frac{5}{3}}}$$

13)
$$\frac{x^{\frac{1}{2}} y^{\frac{2}{3}}}{x(x^{-2} y^{-2})^{-4}}$$

14)
$$\left(\frac{\left(u^2 v^{\frac{5}{4}} \cdot u^{\frac{5}{3}} v^2\right)^{-2}}{\left(u^{\frac{1}{3}} v^{-1}\right)^3}\right)^{-1}$$

15)
$$\frac{nm^{\frac{1}{4}}}{\left(mn^2 \cdot m^{-\frac{3}{2}} n^{\frac{1}{2}}\right)^{-2}}$$

16)
$$\frac{x^{\frac{5}{4}} y^{-2} \cdot x^{-1} y^4}{\left(x^{\frac{4}{3}} y^{\frac{7}{4}}\right)^2}$$

Answers to Rational Exponents II (ID: 1)

$$1) x^{\frac{13}{6}}$$

$$2) n^{\frac{13}{12}}$$

$$3) x^4$$

$$4) \frac{m^{\frac{5}{12}}}{m}$$

$$5) r^{\frac{29}{6}}$$

$$6) \frac{b^{\frac{7}{12}}}{b}$$

$$7) n^{\frac{5}{12}}$$

$$8) p$$

$$9) \frac{x^4 y^{\frac{8}{9}}}{y^4}$$

$$10) y^{\frac{3}{2}} x^{\frac{13}{6}}$$

$$11) x^{\frac{7}{3}}$$

$$12) \frac{m^{\frac{1}{3}} n^{\frac{8}{3}}}{m^2}$$

$$13) \frac{x^{\frac{1}{2}} y^{\frac{2}{3}}}{x^9 y^8}$$

$$14) v^{\frac{37}{6}} u^{\frac{67}{9}}$$

$$15) \frac{n^6 m^{\frac{1}{4}}}{m}$$

$$16) \frac{x^{\frac{7}{12}} y^{\frac{9}{8}}}{x}$$

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Simplify. Your answer should contain only positive exponents with no fractional exponents in the denominator.

1)
$$\frac{n^{\frac{1}{2}} n^{-3}}{(n^3)^{-2}}$$

2)
$$\frac{n^{-\frac{5}{3}} \left(\frac{4}{n^3}\right)^{\frac{2}{3}}}{n}$$

3)
$$\frac{x^{\frac{4}{3}}}{(xx^{-4})^2}$$

4)
$$\frac{x^{-\frac{3}{2}}}{\left(x^{-\frac{1}{2}} \cdot x^2 x^{-\frac{1}{4}}\right)^2}$$

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

6)
$$\frac{b^2}{\left(b^{\frac{7}{4}}\right)^{\frac{3}{3}} b^{-1}}$$

7)
$$\frac{r^{\frac{1}{3}}}{\left(r^{-\frac{7}{4}}\right)^{\frac{4}{3}} r^{\frac{5}{4}}}$$

8)
$$\frac{\left(m^{\frac{1}{2}} m^2 \cdot m^{-\frac{1}{4}}\right)^{\frac{1}{2}}}{m^{\frac{7}{4}}}$$

9)
$$\frac{x^2}{\left(x^{\frac{2}{3}} y^{\frac{3}{2}}\right)^4 \cdot x^{\frac{3}{2}} y^{-4}}$$

10)
$$\frac{u^{\frac{7}{4}} v^{\frac{7}{4}} \cdot v^{\frac{3}{4}}}{\left(u^{-1} v^{\frac{7}{4}}\right)^{\frac{4}{3}}}$$

11)
$$\frac{m^{-\frac{3}{2}} n^{\frac{5}{4}} \cdot m^{\frac{1}{2}} n^2 \cdot n^{-\frac{1}{4}}}{\left(m^{-3} n^{\frac{3}{2}}\right)^{\frac{1}{3}}}$$

12)
$$\frac{x^{-1} \cdot yx^{-\frac{4}{3}}}{(xy)^{-2}}$$

13)
$$\frac{\left(y^{\frac{3}{4}}\right)^{\frac{3}{2}}}{y^2 \cdot xy}$$

14)
$$\frac{\left(m^{\frac{2}{3}}\right)^{\frac{5}{3}} \cdot m^2 n^{-2}}{\left(m^{\frac{5}{3}} n^{\frac{2}{3}}\right)^{\frac{3}{2}}}$$

15)
$$\frac{u^{-2} v^{\frac{2}{3}}}{\left(u^{-\frac{7}{4}} v^2\right)^{-2}} \cdot vu^2$$

16)
$$\frac{\left(x^{-\frac{1}{4}}\right)^{\frac{5}{3}}}{yx^2 \cdot x^2}$$

Answers to Rational Exponents II (ID: 2)

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

2) $\frac{n^{\frac{2}{9}}}{n^2}$

3) $x^{\frac{22}{3}}$

4) $\frac{1}{x^4}$

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

6) $b^{\frac{71}{12}}$

7) $r^{\frac{17}{12}}$

8) $\frac{m^{\frac{3}{8}}}{m}$

9) $\frac{x^{\frac{5}{6}}}{x^3 y^2}$

10) $u^{\frac{5}{12}} v^{\frac{29}{6}}$

11) $\frac{n^{\frac{7}{2}}}{m^2}$

12) $\frac{y^3 x^{\frac{2}{3}}}{x}$

13) $\frac{y^{\frac{1}{8}}}{y^2 x}$

14) $\frac{m^{\frac{11}{18}}}{n^3}$

15) $\frac{v^{\frac{11}{3}} u^{\frac{1}{2}}}{u^8}$

16) $\frac{x^{\frac{7}{12}}}{x^5 y}$

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Simplify. Your answer should contain only positive exponents with no fractional exponents in the denominator.

1)
$$\frac{m^{\frac{1}{3}} m^{\frac{4}{3}}}{m^{\frac{1}{3}}}$$

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

5)
$$\left(\frac{x^{\frac{3}{2}}}{x^2 x^{\frac{1}{4}}} \right)^{\frac{5}{4}}$$

7)
$$\frac{\left(p^{-\frac{3}{2}} \right)^3 p^2 \cdot p}{p^2}$$

9)
$$\left(\frac{y \cdot x^{\frac{3}{2}} y^{\frac{7}{4}}}{\left(x^{\frac{5}{3}} y^{\frac{3}{2}} \right)^{-1}} \right)^{-2}$$

11)
$$\frac{\left(m^{\frac{4}{3}} n^{\frac{5}{3}} \right)^2}{m^{\frac{7}{4}} n^{-\frac{1}{4}} \cdot m^{\frac{3}{4}} n^{\frac{3}{4}}}$$

13)
$$\left(\frac{v^{-\frac{1}{3}} \cdot u^{\frac{3}{2}} v^{\frac{2}{3}}}{\left(u^{\frac{5}{4}} v^{\frac{3}{2}} \right)^{\frac{4}{3}}} \right)^{\frac{1}{3}}$$

15)
$$\frac{(u^2)^{-\frac{3}{2}}}{u^{\frac{3}{2}} \cdot vu^{-1}}$$

2)
$$\frac{r^{-1}}{\left(r^{\frac{3}{2}} \right)^3 r^{-\frac{1}{3}}}$$

4)
$$\frac{n^{-2} n^{-\frac{3}{2}}}{n^{\frac{1}{4}}}$$

6)
$$\frac{(x^{-2})^4}{x^{-\frac{2}{3}} x^{-2}}$$

8)
$$\frac{b^{\frac{3}{4}} b^2}{b^2}$$

10)
$$\frac{xy}{\left(x^{\frac{1}{2}} y^{-\frac{2}{3}} \right)^{-\frac{5}{3}} \cdot yx^2}$$

12)
$$\frac{x^{\frac{1}{4}} y^{\frac{1}{3}}}{x^{\frac{4}{3}} y^{\frac{4}{3}}}$$

14)
$$\frac{\left(\left(x^{\frac{4}{3}} y^{\frac{5}{3}} \right)^4 (y^{-1})^{\frac{4}{3}} \right)^{\frac{5}{3}}}{\left(x^{-\frac{1}{4}} y^{\frac{1}{2}} \right)^{-1} \cdot x^{-2} y^{\frac{7}{4}}}$$

16)
$$\frac{x^{\frac{3}{4}} y^{\frac{3}{2}} \cdot x^{-1} y^2}{\left(x^{\frac{2}{3}} y^{\frac{3}{4}} \right)^4}$$

Answers to Rational Exponents II (ID: 3)

$$1) m^{\frac{4}{3}}$$

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

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

$$4) \frac{n^{\frac{1}{4}}}{n^4}$$

$$5) \frac{x^{\frac{1}{16}}}{x}$$

$$6) x^{\frac{13}{6}}$$

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

$$8) b^{\frac{3}{4}}$$

$$9) \frac{x^{\frac{2}{3}} y^{\frac{1}{2}}}{x^7 y^9}$$

$$10) \frac{y^{\frac{8}{9}} x^{\frac{5}{6}}}{y^2 x}$$

$$11) \frac{m^{\frac{11}{12}} n^{\frac{17}{6}}}{m^4}$$

$$12) \frac{x^{\frac{1}{36}} y^{\frac{1}{3}}}{x^2 y}$$

$$13) \frac{u^{\frac{17}{18}} v^{\frac{4}{9}}}{uv}$$

$$14) \frac{x^{\frac{11}{12}} y^{\frac{1}{4}}}{x^3 y}$$

$$15) \frac{u^{\frac{1}{2}}}{vu^4}$$

$$16) \frac{x^{\frac{1}{4}} y^{\frac{47}{16}}}{x}$$