

Exponents Homework
Precalculus Preview

Simplify. Write answers using only positive exponents. Show all work.

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

2. $(27p^6)^{\frac{5}{3}}$

3. $(216r^9)^{\frac{1}{3}}$

4. $2m^2 \cdot 4m^{\frac{3}{2}} \cdot 4m^{-2}$

5. $3b^{\frac{1}{2}} \cdot b^{\frac{4}{3}}$

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

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

8. $\frac{4x^2}{2x^{\frac{1}{2}}}$

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

10. $\frac{15x^{-3}y^2z^{-1}}{25x^2y^{-2}z^{-1}}$

11. $\frac{(2x^2)^3}{5} \cdot \frac{15x^{-2}}{2x^3}$

$$12. \left(\frac{x^3 y^2}{2x^4} \right)^{-2}$$

$$13. \left(\frac{ab^4}{a^3 b} \right)^{-1} \left(\frac{a^{-2}}{b^2} \right)^2$$

$$14. 2x^{-2} \left(\frac{x^4}{y^{-3}} \right) \left(\frac{x^2 y}{6} \right)$$

$$15. \frac{5x^2 y}{8} \cdot \frac{-2x^{-1} y}{x^3 y}$$

$$16. \frac{15x^{\frac{1}{3}}}{3x^{\frac{3}{5}}}$$

$$17. (-8)^{\frac{-4}{3}}$$

$$18. \left(3y^{\frac{1}{3}} \right) \left(5y^{\frac{1}{4}} \right)$$

$$19. \frac{\sqrt[4]{x} \cdot x^{\frac{1}{2}}}{\sqrt[3]{x} \cdot x^{\frac{-1}{6}}}$$

1. x^6
2. $243p^{10}$
3. $6r^3$
4. $32m^{\frac{3}{2}}$
5. $3b^{\frac{11}{6}}$
6. $a^{\frac{3}{4}}$
7. $\frac{1}{2x^{\frac{5}{12}}}$
8. $2x^{\frac{3}{2}}$
9. $\frac{8x^6}{27y^3z^{21}}$
10. $\frac{3y^4}{5x^5}$
11. $12x$
12. $\frac{4x^2}{y^4}$
13. $\frac{1}{a^2b^7}$
14. $\frac{x^4y^4}{3}$
15. $-\frac{5y}{4x^2}$
16. $\frac{5}{x^{\frac{4}{15}}}$
17. $\frac{1}{16}$
18. $15y^{\frac{7}{12}}$
19. $x^{\frac{7}{12}}$