

Assignment

Date _____ Period _____

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

1) $3m^{\frac{1}{2}}n^2 \cdot 3m^{\frac{1}{2}}n^{-\frac{7}{4}}$

2) $2x^{\frac{1}{2}}y^{\frac{1}{3}} \cdot y^{\frac{2}{3}} \cdot 2x^{-\frac{3}{2}}y^{\frac{1}{3}}$

3) $4u^{\frac{7}{4}} \cdot u^{\frac{2}{3}}$

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

5) $2u^{\frac{2}{3}}v^{-\frac{3}{2}} \cdot 3vu^{\frac{7}{4}}$

6) $3x^{\frac{1}{2}}y^{\frac{3}{2}} \cdot 3xy^{\frac{3}{2}} \cdot 2x^{-\frac{5}{4}}y^{-4}$

7) $2m^{-\frac{1}{2}} \cdot m^{-1}n^{\frac{5}{4}}$

8) $y^{\frac{5}{4}} \cdot 4x^{\frac{1}{2}}y^{\frac{3}{2}}$

9) $3xy^{\frac{2}{3}} \cdot x^2y^2 \cdot 3x^2y^{\frac{4}{3}}$

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

11) $\left((u^{-2})^{-2} \cdot u^{-\frac{3}{2}}v^{-2} \right)^{-2}$

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

13) $(v^2)^{-2} \cdot v \cdot uv^{\frac{2}{3}}$

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

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

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

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

18) $\frac{\left(a^{\frac{3}{4}}b^{-\frac{3}{4}} \right)^{\frac{2}{3}}}{a^{\frac{3}{2}}}$

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

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

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

$$1) 3m^{\frac{1}{2}}n^2 \cdot 3m^{\frac{1}{2}}n^{-\frac{7}{4}} \quad 9mn^{\frac{1}{4}}$$

$$2) 2x^{\frac{1}{2}}y^{\frac{1}{3}} \cdot y^{\frac{2}{3}} \cdot 2x^{-\frac{3}{2}}y^{\frac{1}{3}} \quad \frac{4y^{\frac{4}{3}}}{x}$$

$$3) 4u^{\frac{7}{4}} \cdot u^{\frac{2}{3}} \quad 4u^{\frac{29}{12}}$$

$$4) 4x^2y^{\frac{3}{2}} \cdot 3y^{-1} \quad 12x^2y^{\frac{1}{2}}$$

$$5) 2u^{\frac{2}{3}}v^{-\frac{3}{2}} \cdot 3vu^{\frac{7}{4}} \quad \frac{6v^{\frac{1}{2}}u^{\frac{29}{12}}}{v}$$

$$6) 3x^{\frac{1}{2}}y^{\frac{3}{2}} \cdot 3xy^{\frac{3}{2}} \cdot 2x^{-\frac{5}{4}}y^{-4} \quad \frac{18x^{\frac{1}{4}}}{y}$$

$$7) 2m^{-\frac{1}{2}} \cdot m^{-1}n^{\frac{5}{4}} \quad \frac{2m^{\frac{1}{2}}n^{\frac{5}{4}}}{m^2}$$

$$8) y^{\frac{5}{4}} \cdot 4x^{\frac{1}{2}}y^{\frac{3}{2}} \quad 4y^{\frac{11}{4}}x^{\frac{1}{2}}$$

$$9) 3xy^{\frac{2}{3}} \cdot x^2y^2 \cdot 3x^2y^{\frac{4}{3}} \quad 9x^5 \cdot (y^2)^2$$

$$10) x^{\frac{1}{3}}y^{-\frac{1}{2}} \cdot 2xy \quad 2y^{\frac{1}{2}}x^{\frac{4}{3}}$$

$$11) \left((u^{-2})^{-2} \cdot u^{-\frac{3}{2}}v^{-2} \right)^{-2} \quad \frac{v^4}{u^5}$$

$$12) \left(x^{-\frac{5}{4}}y^{-\frac{3}{2}} \cdot x^{\frac{3}{4}}y^{\frac{5}{3}} \right)^{\frac{1}{2}} \quad \frac{x^{\frac{3}{4}}y^{\frac{1}{12}}}{x}$$

$$13) (v^2)^{-2} \cdot v \cdot uv^{\frac{2}{3}} \quad \frac{uv^{\frac{2}{3}}}{v^3}$$

$$14) \left(\frac{1}{v^4} \right)^{-2} \cdot u^{-\frac{4}{3}}v^{\frac{1}{3}} \quad \frac{v^{\frac{5}{6}}u^{\frac{2}{3}}}{vu^2}$$

$$15) x^{-1}y^{\frac{4}{3}} \cdot \left(x^{\frac{1}{4}} \right)^{\frac{5}{4}} \quad \frac{y^{\frac{4}{3}}x^{\frac{5}{16}}}{x}$$

$$16) \left(\frac{x^{-2}}{x^{\frac{1}{3}}y^{-2}} \right)^{\frac{1}{3}} \quad \frac{y^{\frac{2}{3}}x^{\frac{2}{9}}}{x}$$

$$17) \frac{\left(x^{-\frac{1}{3}} \right)^2}{x^2} \quad \frac{x^{\frac{1}{3}}}{x^3}$$

$$18) \frac{\left(a^{\frac{3}{4}}b^{-\frac{3}{4}} \right)^{\frac{2}{3}}}{a^{\frac{3}{2}}} \quad \frac{b^{\frac{1}{2}}}{ab}$$

$$19) \frac{\left(x^{\frac{3}{4}} \right)^{-\frac{2}{3}}}{x^{\frac{2}{3}}y^{\frac{1}{4}}} \quad \frac{x^{\frac{5}{6}}y^{\frac{3}{4}}}{x^{\frac{2}{3}}y}$$

$$20) \frac{\left(\frac{\left(\frac{1}{y^2} \right)^3}{x^{\frac{3}{4}}y^{-\frac{1}{2}}} \right)^{-\frac{5}{3}}}{x^4y^9} \quad \frac{x^{\frac{5}{4}}y^{\frac{8}{9}}}{y^2}$$