

Name: _____

Date: _____

Topic: _____

INDICES 2

Simplify each of the following, expressing your answers with positive indices.

1. p^{-3}

2. $7a^{-4}$

3. $3^{-6}x^4$

4. $a^{-4}b^7 \times a^{-2}$

5. $4a^{-8}b^{-3} \times 3a^{-1}b^5$

6. $5x^{-4}y^{-2} \times 8x^4y^5$

7. $(3x^5)^{-3}$

8. $(7m^{-4}n^3)^{-5}$

9. $\frac{a^{-4}}{b^{-6}}$

10. $\left(\frac{x^6}{y}\right)^{-7}$

11. $\frac{8m^{-5}n^3}{20m^{-7}n}$

12. $144^{\frac{1}{2}}$

13. $\sqrt[5]{a^{10}b^{15}}$

14. $32^{\frac{2}{5}}$

15. $\sqrt[3]{64x^{12}y^2}$

16. $\left(\frac{a^6b^{10}}{c^8}\right)^{\frac{1}{2}}$

17. $(5x^{-4})^{\frac{1}{2}}$

18. $\left(m^{\frac{2}{5}}n^2\right)^5$

19. $9\sqrt{(a^{-5}b^2)}$

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

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INDICES 2

Simplify each of the following, expressing your answers with positive indices.

$$1. \quad p^{-3}$$

$$= \frac{1}{p^3}$$

$$2. \quad 7a^{-4}$$

$$= \frac{7}{a^4}$$

$$3. \quad 3^{-6}x^4$$

$$= \frac{x^4}{3^6}$$

$$4. \quad a^{-4}b^7 \times a^{-2}$$

$$= \frac{b^7}{a^6}$$

$$5. \quad 4a^{-8}b^{-3} \times 3a^{-1}b^5$$

$$= \frac{12b^2}{a^9}$$

$$6. \quad 5x^{-4}y^{-2} \times 8x^4y^5$$

$$= 40y^3$$

$$7. \quad (3x^5)^{-3}$$

$$= \frac{1}{27x^{15}}$$

$$8. \quad (7m^{-4}n^3)^{-5}$$

$$= \frac{m^{20}}{7^5n^{15}}$$

$$9. \quad \frac{a^{-4}}{b^{-6}}$$

$$= \frac{b^6}{a^4}$$

$$10. \quad \left(\frac{x^6}{y}\right)^{-7}$$

$$= \frac{y^7}{x^{42}}$$

$$11. \quad \frac{8m^{-5}n^3}{20m^{-7}n}$$

$$= \frac{2m^2n^2}{5}$$

$$12. \quad 144^{\frac{1}{2}}$$

$$= 12$$

$$13. \quad \sqrt[3]{a^{10}b^{15}}$$

$$= a^2b^3$$

$$14. \quad 32^{\frac{2}{5}}$$

$$= 4$$

$$15. \quad \sqrt[3]{64x^{12}y^2}$$

$$= 4x^4y^{\frac{2}{3}}$$

$$16. \quad \left(\frac{a^6b^{10}}{c^8}\right)^{\frac{1}{2}}$$

$$= \frac{a^3b^5}{c^4}$$

$$17. \quad (5x^{-4})^{\frac{1}{2}}$$

$$= \frac{\sqrt{5}}{x^2}$$

$$18. \quad \left(m^{\frac{2}{3}}n^2\right)^5$$

$$= m^2n^{10}$$

$$19. \quad 9\sqrt{(a^{-3}b^2)}$$

$$= \frac{9b}{a^{\frac{3}{2}}}$$

$$20. \quad \left(\frac{a^{\frac{2}{3}}}{b^{-\frac{1}{3}}}\right)^6$$

$$= a^4b^2$$