

Name: _____

Date: _____

Topic: _____

INDICES 1

Simplify each of the following using the laws of indices.

1. $p^3 \times p^7$

2. $8j^6k \times 7jk$

3. $w^4 \times w^2 \times w^5$

4. $3a^5b^7 \times 9a^7$

5. $9a^8bc \times 6abc^8$

6. $3x^4y^2 \times 5xy^5$

7. $10a^2c^3 \times 3b^5c^{11}$

8. $6x^3y^2 \times 3x^4y^5$

9. $p^8 \div p^5$

10. $15a^4b^8 \div 3ab^5$

11. $\frac{9m^5n^3}{18m^5n}$

12. $\frac{12a^6b^4c^2}{16a^5c}$

13. $\frac{5x^5y^3}{7x^3}$

14. $\frac{2d^8e^5}{6d^5f}$

15. $36x^5y^8 \div 9x^4y^3$

16. $(a^4)^5$

17. $(5x^7)^2$

18. $(m^3n^2)^7$

19. $7(a^5b^2)^{11}$

20. $\left(\frac{a^3}{b^5}\right)^2$

21. $\left(\frac{5x^4}{y^7}\right)^3$

22. $(5v^4)^0$

23. $13a^0$

24. $7(m^5n^2)^0$

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INDICES 1

Simplify each of the following using the laws of indices.

$$\begin{aligned} 1. \quad p^3 \times p^7 \\ = p^{10} \end{aligned}$$

$$\begin{aligned} 2. \quad 8j^6k \times 7jk \\ = 56j^7k^2 \end{aligned}$$

$$\begin{aligned} 3. \quad w^4 \times w^2 \times w^5 \\ = w^{11} \end{aligned}$$

$$\begin{aligned} 4. \quad 3a^5b^7 \times 9a^7 \\ = 27a^{12}b^7 \end{aligned}$$

$$\begin{aligned} 5. \quad 9a^8bc \times 6abc^8 \\ = 54a^9b^2c^9 \end{aligned}$$

$$\begin{aligned} 6. \quad 3x^4y^2 \times 5xy^5 \\ = 15x^5y^7 \end{aligned}$$

$$\begin{aligned} 7. \quad 10a^2c^3 \times 3b^5c^{11} \\ = 30a^2b^5c^{14} \end{aligned}$$

$$\begin{aligned} 8. \quad 6x^3y^2 \times 3x^4y^5 \\ = 18x^7y^7 \end{aligned}$$

$$\begin{aligned} 9. \quad p^8 \div p^5 \\ = p^3 \end{aligned}$$

$$\begin{aligned} 10. \quad 15a^4b^8 \div 3ab^5 \\ = 5a^3b^3 \end{aligned}$$

$$\begin{aligned} 11. \quad \frac{9m^5n^3}{18m^5n} \\ = \frac{n^2}{2} \end{aligned}$$

$$\begin{aligned} 12. \quad \frac{12a^6b^4c^2}{16a^5c} \\ = \frac{3ab^4c}{4} \end{aligned}$$

$$\begin{aligned} 13. \quad & \frac{5x^5y^3}{7x^3} \\ &= \frac{5x^2y^3}{7} \end{aligned}$$

$$\begin{aligned} 14. \quad & \frac{2d^8e^5}{6d^5f} \\ &= \frac{d^3e^5}{3f} \end{aligned}$$

$$\begin{aligned} 15. \quad & 36x^5y^8 \div 9x^4y^3 \\ &= 4xy^5 \end{aligned}$$

$$\begin{aligned} 16. \quad & (a^4)^5 \\ &= a^{20} \end{aligned}$$

$$\begin{aligned} 17. \quad & (5x^7)^2 \\ &= 25x^{14} \end{aligned}$$

$$\begin{aligned} 18. \quad & (m^3n^2)^7 \\ &= m^{21}n^{14} \end{aligned}$$

$$\begin{aligned} 19. \quad & 7(a^5b^2)^{11} \\ &= 7a^{55}b^{22} \end{aligned}$$

$$\begin{aligned} 20. \quad & \left(\frac{a^3}{b^5}\right)^2 \\ &= \frac{a^6}{b^{10}} \end{aligned}$$

$$\begin{aligned} 21. \quad & \left(\frac{5x^4}{y^7}\right)^3 \\ &= \frac{125x^{12}}{y^{21}} \end{aligned}$$

$$\begin{aligned} 22. \quad & (5v^4)^0 \\ &= 1 \end{aligned}$$

$$\begin{aligned} 23. \quad & 13a^0 \\ &= 13 \end{aligned}$$

$$\begin{aligned} 24. \quad & 7(m^5n^2)^0 \\ &= 7 \end{aligned}$$