



PROBLEMS AND SOLUTIONS - THE LAWS OF EXPONENTS

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PLEASE NOTE THAT YOU MUST BE ABLE TO DO THE FOLLOWING PROBLEMS WITHOUT A CALCULATOR!

Problem 1:

Multiply $x^2 \cdot x^3$.

Problem 2:

Multiply $x \cdot x^6$.

Problem 3:

Multiply $10^2 \cdot 10^5$.

Problem 4:

Multiply $10^2 \cdot 6^5$.

Problem 5:

Multiply $2(10a)$.

Problem 6:

Multiply $2xy^2(-3xy^2)$.

Problem 7:

Multiply $-2(3a)(-5bc^2)(-2ac)$.

Problem 8:

Simplify $-2a^3b^4(-3a^5b^7)$.

Problem 9:

Find the value of 5^0 .

Problem 10:

Find the value of $1,000,000^0$.

Problem 11:

Find the values of $(-2)^0$ and -2^0 .

Problem 12:

Rewrite in terms of positive exponents: y^{-4}

Problem 13:

Rewrite in terms of positive exponents: 3^{-3}

Problem 14:

Rewrite in terms of positive exponents: $(-4)^{-3}$ and -4^{-3} .

Problem 15:

Rewrite in terms of positive exponents: $(-4)^{-4}$ and -4^{-4} .

Problem 16:

Divide $\frac{x^5}{x^2}$.

Problem 17:

Divide $\frac{x^6}{x}$

Problem 18:

Divide $\frac{10^5}{10^2}$.

Problem 19:

Divide $\frac{6^4}{3^2}$.

Problem 20:

Divide $\frac{x^3}{x^3}$.

Problem 21:

Divide $\frac{x^2}{x^5}$.

Problem 22:

Simplify $\frac{-12x^3y^5}{3xy^2}$.

Problem 23:

Simplify $\frac{8ab^3}{2}$.

Problem 24:

Simplify $\frac{4ab^5}{3ab^{-4}}$.

Problem 25:

Simplify $\frac{-18x^3y^{-9}}{3x^2y^2}$. Write your answer with positive exponents only!

Problem 26:

Find the value of $\left(\frac{2}{x}\right)^3$.

Problem 27:

Simplify $\left(\frac{5}{2}\right)^3$.

Problem 28:

Simplify $\left(\frac{1}{3}\right)^4$.

Problem 29:

Simplify $\left(\frac{-3}{5}\right)^2$.

Problem 30:

Find the value of the number $(5x)^2$.

Problem 31:

Simplify $(x^2)^3$.

Problem 32:

Simplify $(-3a^3b^4c)^2$.

Problem 33:

Simplify $(-5h^{-1}k^{-2})^{-3}$.

SOLUTIONS

You can find detailed solutions below the link for this problem set!

1. x^5	2. x^7	3. $10^7 = 10,000,000$
4. 777,600	5. $20a$	6. $-6x^2y^4$
7. $-60a^2bc^3$	8. $6a^8b^{11}$	9. 1
10. 1	11. 1 and -1	12. $\frac{1}{y^4}$
13. $\frac{1}{27}$	14. $-\frac{1}{64}$ and $-\frac{1}{64}$	15. $\frac{1}{256}$ and $-\frac{1}{256}$
16.	17. x^5	18. $10^3 = 1000$
19. 144	20. 1	21. $x^{-3} = \frac{1}{x^3}$
22. $-4x^2y^3$	23. $4ab^3$	24. $\frac{4}{3}b^9$ or $\frac{4b^9}{3}$
25. $-\frac{6x}{y^{11}}$	26. $\frac{8}{x^3}$	27. $\frac{125}{8}$
28. $\frac{1}{81}$	29. $\frac{9}{25}$	30. $25x^2$
31. x^6	32. $9a^6b^8c^2$	33. $-\frac{1}{125}h^3k^6$ or $-\frac{h^3k^6}{125}$