



PROBLEMS AND SOLUTIONS - THE LAWS OF EXPONENTS

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Please Send Questions and Comments to ingrid.stewart@csn.edu. Thank you!

PLEASE NOTE THAT YOU CANNOT USE A CALCULATOR ON THE ACCUPLACER - ELEMENTARY ALGEBRA TEST! 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 $2xy^2(-3xy^2)$.

Problem 6:

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

Problem 7:

Multiply $2(10a)$.

Problem 8:

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

Problem 9:

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

Problem 10:

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

Problem 11:

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

Problem 12:

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

Problem 13:

Find the value of 5^0 .

Problem 14:

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

Problem 15:

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

Problem 16:

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

Problem 17:

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

Problem 18:

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

Problem 19:

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

Problem 20:

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

Problem 21:

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

Problem 22:

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

Problem 23:

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

Problem 24:

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

Problem 25:

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

The word "simplify" takes on many meanings in mathematics. Often you must figure out its meaning from the mathematical expression you are asked to "simplify." Here we will be asked to "simplify" instead of finding the value of the number raised to the third power.

Problem 26:

Simplify $\left(\frac{3}{4}\right)^2$.

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:

Simplify $(x^2)^3$.

Problem 31:

Simplify $(5x)^2$.

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