Laws of Exponents

Grade 8–10 Math · Grades 8–10 · About 20 minutes · 8 questions

Name _____ Date _____ Score / 8

WHAT YOU WILL PRACTICE

- Multiply and divide powers of the same base
- Raise a power to another power
- Evaluate zero and negative exponents

WORKED EXAMPLE

Simplify $(2x^3)^2 \times x^4$.

1. Square everything inside the bracket: $2^2 = 4$ and $(x^3)^2 = x^6$, giving $4x^6$.
2. Multiply by x^4 by adding the exponents: $6 + 4 = 10$.
3. Write the result: $4x^{10}$.

Answer: $4x^{10}$

Questions

Show your work in the space under each question.

1. Simplify $a^3 \times a^4$

2. Simplify $x^9 \div x^4$

3. Simplify $(y^3)^4$

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4. Simplify $3a^2 \times 4a^5$

5. Simplify $12x^8 \div 3x^2$

6. Work out the value of 5^0

7. Work out the value of 2^{-3}

8. Work out the value of $4^3 \times 4^{-1}$

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Answers: Laws of Exponents

Mark your own work, then go back to any question you got wrong before reading the tutor tip.

Q	QUESTION	ANSWER
1	Simplify $a^3 \times a^4$	**a^7**
2	Simplify $x^9 \div x^4$	**x^5**
3	Simplify $(y^3)^4$	**y^{12}**
4	Simplify $3a^2 \times 4a^5$	**$12a^7$**
5	Simplify $12x^8 \div 3x^2$	**$4x^6$**
6	Work out the value of 5^0	**1**
7	Work out the value of 2^{-3}	**1/8**
8	Work out the value of $4^3 \times 4^{-1}$	**16**

TUTOR TIP

Multiplying means add the exponents, dividing means subtract them, and a power of a power means multiply them. Numbers in front are multiplied or divided as normal.

Stuck on a question? Work through it live with a tutor.

YFCampus offers one-to-one online Math tutoring matched to your school curriculum. Book a free trial class at **www.yfcampus.com/ph**

Written for students aged 13 to 16 and suitable for Grades 8–10. Check your school's curriculum for the exact order of topics. YFCampus is independent and is not affiliated with any exam board or education ministry.