

Operations on Powers Lesson (DO NOT WRITE ON PAPER)

Last year, you explored the fundamentals of exponent laws using whole-number exponents. This year, in BC Math 10, you'll expand your understanding to include negative exponents. Looking ahead to next year, you'll dive into the world of fractional exponents, building on the skills you've already developed. Visit hunkim.com/10 for more BC Math 10 resources.

- Positive and negative exponents
- Exponent laws
- Evaluation using order of operations
- Numerical and variable bases

1. 2^3

2. $(-5)^3$

3. -3^2

4. $(-1)^{100}$

5. $(-1)^{123}$

6. -1^{666}

7. $-2(-2)^2$

8. $-2^2 - (-2)^2$

9. 0^1

10. 1^0

11. π^0

12. 0^0

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

14. 2^{-3}

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

16. $-2(-2)^{-2}$

17. $4(-2)^{-3} \div \frac{1}{2^{-2}}$

18. $a(2a^3 \times 3a^2)$

19. $\frac{x(x^2)(x^5)}{x^4}$

20. $(2x^3y^2)^3$

21. $\left(\frac{4x^5}{2x^3}\right)^3$

22. $\left(\frac{3a}{9a^{-2}}\right)^2$

23. $\left(\frac{5x^2yz^3}{25x^{-1}y^3}\right)^{-3}$

24. $16^{1-2x} = 2^x$

25. $-3x\left(\frac{2x^5y^{-2}}{x^{-3}y^5}\right)^{-3} \div \frac{1}{x^{-3}y}$

Challenge

26. $\frac{125^{3x}}{25^{x-1}} = 625^{2x+1}$

27. $\left[\frac{(-2)^{500}}{-2^{497}}\right]^{-3} \div \left[-\frac{2^{200}}{(-2)^{199}}\right]^{-1} \times \frac{1^0}{\frac{0}{1}-0!\times 1!}$

Hint: $k!$ means k factorial

28. Solve $25^{2x-1} = 6^{x+3}$ using Desmos or a graphing calculator
 $x \approx 1.85$