

Grade 8 · Properties of Integer Exponents · Test

Common Core 8.EE.A.1 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

This test has 9 questions worth 20 points on the properties of integer exponents (8.EE.A.1). Calculators are not needed. Show the exponent steps for every question, and write final answers as fractions rather than decimals unless stated.

Test information

- **Grade:** Grade 8
- **Chapter:** Properties of Integer Exponents
- **Common Core:** 8.EE.A.1
- **Time:** 45 minutes
- **Total:** 20 points (Question 1: 2 pts; Question 2: 3 pts; Question 3: 3 pts; Question 4: 2 pts; Question 5: 2 pts; Question 6: 2 pts; Question 7: 2 pts; Question 8: 2 pts; Question 9: 2 pts)

Question 1: Evaluate powers (2 points)

Evaluate each expression.

- 5^3 (1 point)
- 10^{-3} (1 point)

Question 2: Positive exponent rules (3 points)

Write each expression as a single power.

- $6^4 \cdot 6^7$ (1 point)
- $\frac{9^{12}}{9^5}$ (1 point)
- $(2^5)^3$ (1 point)

Question 3: Negative exponent rules (3 points)

Write each expression as a single power. Then write the result without a negative exponent

when the exponent is negative.

- a. $3^{-4} \cdot 3^9$ (1 point)
- b. $\frac{7^2}{7^6}$ (1 point)
- c. $(5^{-2})^{-3}$ (1 point)

Question 4: Show an equivalent expression (2 points)

Show that $2^6 \cdot 2^{-9}$ is equivalent to $\frac{1}{8}$.

Question 5: Zero and fraction bases (2 points)

Evaluate each expression.

- a. $(-9)^0$ (1 point)
- b. $\left(\frac{1}{2}\right)^{-3}$ (1 point)

Question 6: Complete the table (2 points)

The table shows powers of 3.

	$\div 3$	$\div 3$	$\div 3$	$\div 3$	$\div 3$
3^3	3^2	3^1	3^0	3^{-1}	3^{-2}
27	9	3	?	?	?

Powers of 3.

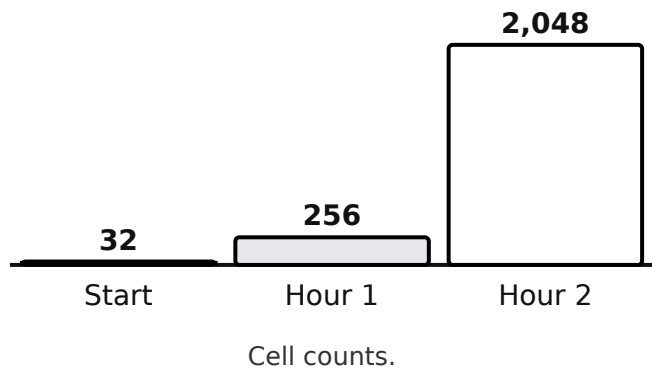
- a. Fill in the three missing values. (1 point)
- b. Write 3^{-4} as a fraction. (1 point)

Question 7: Multi-step simplify (2 points)

Simplify $\frac{(4^3 \cdot 4^{-5})^2}{4^{-2}}$ and write the answer as a fraction.

Question 8: Colony growth (2 points)

A colony has 2^5 cells. Each hour the count is multiplied by 2^3 . Write the count after 1 hour and after 2 hours as single powers of 2, and give the count after 1 hour as a number.



Question 9: Find the error (2 points)

Aisha simplified $\frac{5^6}{5^2}$ and wrote 5^3 . Explain her error and give the correct result.

