

Grade 8 - Properties of Integer Exponents - Test Answer Key

Common Core 8.EE.A.1 · maths-pdf.fr/en/

Use this answer key to score the integer exponents test out of 20 points. Each solution shows the full work and a scoring guide, so partial credit can be given fairly when a student shows correct steps but makes an arithmetic slip.

Grade 8 · Common Core State Standards: **8.EE.A.1**

Question 1 - Use the rules [4 pts]

- a. 5^6
- b. $7^3 = 343$
- c. 3^6
- d. 1

Scoring: 1 point for each correct part.

Question 2 - Negative exponents [3 pts]

2^3 8	2^2 4	2^1 2	2^0 1	2^{-1} $\frac{1}{2}$	2^{-2} $\frac{1}{4}$
	÷2	÷2	÷2	÷2	÷2

Each step to the right divides by 2, so the exponent drops by 1.

- a. $2^{-1} = \frac{1}{2}$ and $2^{-2} = \frac{1}{4}$.
- b. $10^{-2} = \frac{1}{100} = 0.01$.

Scoring: Part a: 1 point for each fraction. Part b: 1 point.

Question 3 - Expand and count [2 pts]



5^2 : 2 factors 5^3 : 3 factors

Together: 5 factors, so 5^5

$$5^2 \times 5^3 = 5^5$$

$$5^2 \cdot 5^3 = 5^5 = 3,125.$$

Scoring: 1 point for 5^5 . 1 point for 3,125.

Question 4 - Fractions [2 pts]

Flip: $\left(\frac{4}{3}\right)^2 = \frac{16}{9}$.

$$\frac{16}{9}$$

Scoring: 1 point for flipping the fraction. 1 point for $\frac{16}{9}$.

Question 5 - Multi-step [3 pts]

Numerator: $3^{-2+7} = 3^5$. Then $3^{5-2} = 3^3$.

$$3^3 = 27$$

Scoring: 1 point for numerator 3^5 . 1 point for 3^3 . 1 point for 27.

Question 6 - Find the exponent [2 pts]

Subtract exponents: $n-3 = -2$, so $n = 1$.

Scoring: 1 point for the equation $n-3 = -2$. 1 point for $n = 1$.

Question 7 - Doubling [2 pts]

After w weeks: 2^w thousand.

$$2^8 = 256.$$

256 thousand followers

Scoring: 1 point for 2^w . 1 point for 256 thousand.

Question 8 - Explain [2 pts]

A negative exponent means a reciprocal, not a product with a negative sign. $5^{-2} = \frac{1}{5^2} = \frac{1}{25}$.

Scoring: 1 point for the explanation. 1 point for $\frac{1}{25}$.

Total
20 points