

Algebra 1 - Exponent Rules and Radicals - Test

Common Core N-RN.A.1, N-RN.A.2, N-RN.B.3 · maths-pdf.fr/en/

Name: _____ Class: _____ Date: ____/____/____

This test checks exponent rules and radicals for Common Core N-RN.A.1, N-RN.A.2, and N-RN.B.3. It has 9 questions worth 20 points in all, and you have 45 minutes. Write clear steps, because points are awarded for method as well as for the final answer. Leave a few minutes to review.

About this test

- Grade: Algebra 1
- Chapter: Exponent Rules and Radicals
- Standards: N-RN.A.1, N-RN.A.2, N-RN.B.3
- Time: 45 minutes
- Total: 20 points

Question 1 - Evaluate with exponent rules [2 pts]

a. Evaluate $2^5 \cdot 2^{-2}$. (1 point)

b. Evaluate $\frac{(3^2)^3}{3^4}$. (1 point)

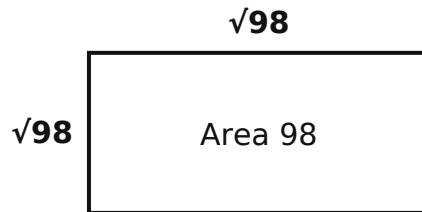
Question 2 - Power of a product [2 pts]

Simplify $(4x^3y^2)^2$.

Question 3 - Negative exponents [2 pts]

Simplify $\frac{x^{-3}y^4}{x^2y}$ and write the answer with positive exponents.

Question 4 - Simplify a radical [2 pts]



A square with area 98.

The square has area 98 square inches. Write its side length in simplest radical form.

Question 5 - Rational exponents [2 pts]

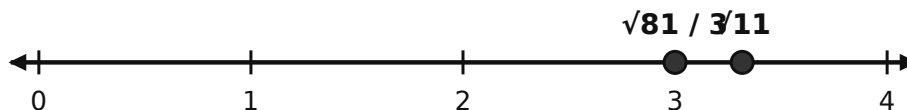
Evaluate each expression.

- a. $64^{1/3}$ (1 point)
- b. $9^{3/2}$ (1 point)

Question 6 - Radicals and exponents [2 pts]

- a. Write $x^{3/4}$ as a radical. (1 point)
- b. Write $\sqrt[5]{y^2}$ with a rational exponent. (1 point)

Question 7 - Rational or irrational [3 pts]



The number line shows $\sqrt{11}$ and 3.

- a. Classify $\sqrt{81}$ as rational or irrational. (1 point)
- b. Classify $\sqrt{11}$ as rational or irrational. (1 point)
- c. Explain why $3+\sqrt{5}$ is irrational. (1 point)

Question 8 - Population model [3 pts]

Hours t	0	1	2	3
P	50	150	450	1350

Population values of $P = 50 \cdot 3^t$.

A population is modeled by $P = 50 \cdot 3^t$ where t is in hours.

- Find $P(0)$. (1 point)
- Find $P(4)$. (1 point)
- Find t when $P = 1350$. (1 point)

Question 9 - Find the error [2 pts]

A student wrote $(2x)^3 = 2x^3$. Explain the error and give the correct result.