

Exponent Detective Answer Key

1. False

Correction: $4^{-2} = \frac{1}{4^2} = \frac{1}{16}$. The exponent does not make the number negative.

2. True

3. True

4. False

Correction: $10^{-2} = \frac{1}{100}$.

5. True

6. True

7. True

8. False

Correction: $b^{-2} = \frac{1}{b^2}$.

9. False

Correction: $3^{-1} = \frac{1}{3}$.

10. True

Teacher's Guide

- Quick implementation tips
 - Review the rule $a^{-n} = \frac{1}{a^n}$ before students begin.
 - Encourage students to explain why a false statement is incorrect before rewriting it.
- Differentiation strategies
 - Allow students to use a reference chart with examples of positive and negative exponents.
 - Ask advanced students to justify each answer using exponent rules instead of examples alone.
- Engagement ideas
 - Have students vote "True" or "False" before revealing the answer and discuss common misconceptions.
 - Let pairs compare corrections and explain their reasoning to each other.
- Extension activities
 - Have students write three false statements about negative exponents for a partner to correct.
 - Ask students to rewrite every false statement using only positive exponents and reciprocal notation.