

Mistake Mission Answer Key

- 1) Error: A negative exponent does not make the value negative.
Correct solution: $2^{-3} = \frac{1}{8}$
- 2) Error: A negative exponent means take the reciprocal.
Correct solution: $x^{-4} = \frac{1}{x^4}$
- 3) Error: The exponent is negative, not the number.
Correct solution: $5^{-2} = \frac{1}{25}$
- 4) Error: Dividing by a^{-3} is equivalent to multiplying by a^3 .
Correct solution: $\frac{1}{a^{-3}} = a^3$
- 5) Error: A negative exponent gives the reciprocal.
Correct solution: $10^{-1} = \frac{1}{10}$
- 6) Error: The factor was not moved across the fraction bar.
Correct solution: $\frac{b^{-2}}{1} = \frac{1}{b^2}$
- 7) Error: The reciprocal is reversed.
Correct solution: $3^{-1} = \frac{1}{3}$
- 8) Error: Dividing by a negative power changes it to a positive power.
Correct solution: $\frac{1}{7^{-2}} = 7^2 = 49$

Teacher's Guide

- Quick implementation tips
 - o Encourage students to identify the misconception before writing the correct answer.
 - o Review that a negative exponent affects the location of a factor, not its sign.
- Differentiation strategies
 - o Provide students with a reference rule: $a^{-n} = \frac{1}{a^n}$.
 - o Ask advanced students to write a brief explanation of why each incorrect solution is a common mistake.
- Engagement ideas
 - o Have students work in pairs as "math detectives" and defend their corrections.
 - o Ask volunteers to explain one corrected example to the class.