Common Algebra Mistakes

Fragment: Order of Operations with Exponential Expression

The Mistake Fragment

Find the algebra mistake:

$$10(1.3)^t = 13^t$$

Need a hint? Look carefully at the red part of the algebra:

$$10(1.3)^t = 13^t$$

The Correction

$$10(1.3)^t = 10(1.3)^t$$

An Explanation

The 10 cannot be combined with the 1.3 since the 1.3 is raised to the power t while the 10 is not. The order of operations rules mean that 1.3 is raised to the power t first and then the result is multiplied by 10. The 10 and the 1.3 *could* be combined if *both* were raised to a common power, as follows:

$$10^t(1.3)^t = (10 \times 1.3)^t = 13^t$$