

Chapter 1

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Example 1 (Division by zero). *The cancellation law tells us that $ac = bc$ implies $a = b$ except when $c = 0$. For example, $1 \times 0 = 2 \times 0$ does not imply that $1 = 2$, because we cannot divide by zero. This teaches us that in math there is sometimes an exception to a rule. When it comes to the cancellation law, division by zero is the exception to the rule; we cannot divide by zero. So $c = 0$ is an exception to the cancellation law, and it is also the only exception to the cancellation law. When $c \neq 0$, we can say that $a = b$.*