1 Lesson 3 Example 3

Calculate $\binom{m}{1}$. Why does this answer make sense?

2 Answer

To calculate $\binom{m}{1}$, we use the definition of the binomial coefficient:

$$\binom{m}{1} = \frac{m!}{1!(m-1)!}$$

Calculation:

1. Simplify the factorial expressions:

$$\binom{m}{1} = \frac{m!}{1!(m-1)!} = \frac{m \cdot (m-1)!}{1 \cdot (m-1)!}$$

2. Cancel out the $(m-1)!$ terms:

$$\binom{m}{1} = \frac{m}{1} = m$$

Explanation:

This answer makes sense because $\binom{m}{1}$ represents the number of ways to choose 1 item from a set of m items. There are exactly m ways to choose 1 item from m items, as each item is a distinct choice. Therefore, the result $\binom{m}{1} = m$ correctly reflects this idea.