

Challenge

Commutative Cubes

The Commutative Property states that changing the order of factors does not change the product. Use two number cubes to prove that this is so.

Roll the cubes. Record the two factors. Multiply them in any order. Then multiply them in the reverse order. Record your products. Repeat seven more times.

FACTOR 1	FACTOR 2	PRODUCT 1	PRODUCT 2

1. Suppose one of the factors is zero. Does the Commutative Property still hold true? Explain your answer.

2. Use number cubes to test the Commutative Property for each of these operations: addition, subtraction, and division. For which of the operations does the Commutative Property hold true? Give an example.

3. How could you use three number cubes to prove the Associative Property? Give an example.

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1-3: Answers will vary.

1. Suppose one of the factors is zero. Does the Commutative Property still hold true? Explain your answer.

Yes; $a \times 0 = 0$, and $0 \times a = 0$

2. Use number cubes to test the Commutative Property for each of these operations: addition, subtraction, and division. For which of the operations does the Commutative Property hold true? Give an example.

Addition; $a + b = b + a$

3. How could you use three number cubes to prove the Associative Property? Give an example.

Toss three number cubes. Multiply $a \times (b \times c)$ and

$(a \times b) \times c$.
