# 01204211 Discrete Mathematics Lecture 6: Mathematical Induction 1

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or "We can pay any integer amount  $x \geq 4$  baht with 2-baht coins and 5-baht coins."

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- Mhat is  $\sum_{i=5}^{2} i$ ? Note that in this case, the range is empty. This sum is called an **empty sum**. By convention, we define it to be zero.

- Let's try to check that  $\sum_{i=1}^n i = i(i+1)/2$ , for any integer  $n \ge 1$ , by experimentation.
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- ► Try n = 2: LHS: 1 + 2 = 3, RHS: 2(2 + 1)/2 = 3, OK
- ► Try n = 3: LHS: 1 + 2 + 3 = 6,

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- ► Try n = 2: LHS: 1 + 2 = 3, RHS: 2(2 + 1)/2 = 3, OK
- ► Try n = 3: LHS: 1 + 2 + 3 = 6, RHS: 3(3 + 1)/2 = 6,

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- ► Try n = 3: LHS: 1 + 2 + 3 = 6, RHS: 3(3 + 1)/2 = 6, OK
- ► Try ...
- ▶ With this approach, we can't actually prove this statement.