

# CSC165 fall 2019

Mathematical expression:  
induction

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BA4270 (behind elevators)

Web page:

<http://www.teach.cs.toronto.edu/~heap/165/F19/>

Using **Course notes: Induction**

# Outline











# review induction parts

- ▶ claim
- ▶ base case
- ▶ inductive step



## more domino logistics....

$$7^0 \equiv 1 \pmod{6}$$

$$7^1 \equiv 1 \pmod{6}$$

$$7^2 \equiv 1 \pmod{6}$$

$$7^3 \equiv 1 \pmod{6}$$

$$7^4 \equiv 1 \pmod{6}$$

$$7^5 \equiv 1 \pmod{6}$$

... "etc."

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$$2n + 1 < 2^n$$

$$\forall n \in \mathbb{N}, 3^n \geq n^3$$



$$\forall x, y \in \mathbb{N}, \forall n \in \mathbb{N}, x - y \mid x^n - y^n$$

order of introductions...

