

**Fall 2019, Math 620: Preliminary Problem Set 12**  
**Due: Thursday, December 5th, 2019**  
**Categories and Universal Properties**

**Preliminary problems.** These problems should be completed before discussion on Thursday.

- (P1) Draw a commutative diagram expressing the universal property of the product  $A \times B \times C$ .  
Be sure to use “dashed” arrows for morphisms that are claimed vs. those fixed as input.