Set Theory
Quiz 2

Name:_____

You have 10 minutes to complete this quiz. If you have a question raise your hand and remain seated. In order to receive full credit your answer must be **complete**, **legible** and **correct**. Show your work, and give adequate explanations.

Let $A = \{2, 3, 4, 5, 6\}$ and let $f\colon A \to A$ be the function defined by the rule "$f(n)$ equals the largest prime factor of n".

1. Write down the image and coimage of f. (Write them as sets.)

$\mathrm{im}(f) = \{2, 3, 5\}$.

$\mathrm{coim}(f) = \{\{2, 4\}, \{3, 6\}, \{5\}\}$.

2. Draw pictures of the smallest ordered sets $\langle X; < \rangle$ such that
   (a) $\langle X; < \rangle$ has at least two distinct incomparable elements, but not two distinct comparable elements.

A picture of the 2-element discrete order should go here. Something like:

   (b) $\langle X; < \rangle$ has at least two distinct maximal elements, but not two distinct maximum elements.

The same picture as the one in Part (a) should go here.