

546 Summer 2002 Exam 2

PRINT Your Name: _____

There are 10 problems on 5 pages. Each problem is worth 5 points.

I will put your exam outside my office door by noon on Friday. You may pick it up any time before class on Monday. If I know your e-mail address, I will e-mail your score on Exam 2 to you.

1. Define "group". Use complete sentences.

A group is a set G together with an operation $*$ which satisfies the following properties.

closure If a and b are in G , then $a * b$ is in G .

Associativity If $a, b,$ and c are in G , then $(a * b) * c = a * (b * c)$.

Identity element There exists an element e in G with $a * e = a$ and $e * a = a$ for all a in G .

Inverses If a is in G , then there exists an element b in G with $a * b = e$ and $b * a = e$.

2. Define "center". Use complete sentences.

The center of the group G is

$$\{g \in G \mid gx = xg \text{ for all } x \text{ in } G\}.$$