

MATH 243 – Mathematical Structures
Quiz 4 – October 6, 2017

Your Name: _____

Directions

Do all work and answer all questions on this sheet. (Use the back if you need more space.)
There are 30 possible points, distributed as indicated.

A) (10) Let $f : A \rightarrow B$ be a mapping. **Define:** f is injective; f is surjective

B) (10) Let $f : \mathbb{Z} \rightarrow \mathbb{Z}$ be defined by $f(x) = x^2 + 2x + 3$. Is f injective? Is f surjective? Prove your assertions.

C) (10) Find the quotient and remainder on division of $N = 346$ by $n = 17$ in \mathbb{Z} .