MATH310 Homework 2022-07-18
Due Gradescope 11:59pm 2022-07-20

1. Suppose x is an integer. Prove by contrapositive that if x^2 is not divisible by 4 then x is odd. [25 pts]

2. Suppose x is a real number. Prove that if $x(x-4) > -3$ then $x < 1$ or $x > 3$. [25 pts]

3. Prove by contradiction that if n is a natural number that: [25 pts]

$$\frac{n}{n+1} < \frac{n+1}{n+2}$$

4. Suppose a and b are positive integers. Prove by contradiction that if $a < b$ and $ab < 3$ then $a = 1$ [25 pts]