

Name:

**Math 350: Exam 7**

Make sure to show all your work as clearly as possible. This includes justifying your answers if required. Calculators are not allowed.

You may use any result from the chapters covered in the text or from lecture. You may not use the results of homework or worksheet problems.

1. (20 pts) Show that  $f : \mathbb{R} \rightarrow \mathbb{R}$  given by  $f(x) = 3x - 4$  is bijective.

2. Let  $F : \mathbb{N} \times \mathbb{N} \rightarrow \mathbb{Q}$  be given by  $F(a, b) = \frac{a}{b}$ .

(a) (15 pts) Is  $F$  injective? Prove your answer.

(b) (15 pts) Is  $F$  surjective? Prove your answer.