MA1125 – Calculus
Homework #1
due Thursday, Sep. 20

1. Find the domain and the range of the function f which is defined by

$$f(x) = \frac{3-2x}{5-3x}.$$

2. Find the domain and the range of the function f which is defined by

$$f(x) = \frac{\sqrt{2x-1}}{x}.$$

3. Show that the function $f\colon (0,1) \to (1,\infty)$ is bijective in the case that

$$f(x) = \frac{1+x}{1-x}.$$

4. Express the following polynomials as the product of linear factors.

$$f(x) = 3x^3 - 2x^2 - 7x - 2, \qquad g(x) = x^3 + x^2 - \frac{7x}{4} + \frac{1}{2}.$$

5. Determine all angles $0 \leq \theta \leq 2\pi$ such that $2\sin^2\theta + 9\sin\theta = 5$.

- This assignment is due by Thursday noon, either in class or else in my office.
- Write your name and course (Maths, TP, TSM) on the first page of your homework.
- NO LATE HOMEWORK WILL BE ACCEPTED.