Math 101 – WORKSHEET 12
TRIGONOMETRIC SUBSTITUTION

1. Trig substitution

(1) (Final, 2014) Evaluate $\int \sqrt{4-x^2}\,\mathrm{d}x$

(2) (Final, 2013) Evaluate $\int_{-1}^{1} \frac{\mathrm{d}x}{(x^2+1)^3}$

(3) (105 Final, 2012) Evaluate the indefinite integral $\int \frac{\sqrt{25x^2-4}}{x}\,\mathrm{d}x$

Date: 30/1/2017, Worksheet by Lior Silberman.

2. COMPLETING THE SQUARE ETC

(4) (105 Final, 2014 + 101 Final, 2009) Convert $\int \left(3-2x-x^2\right)^{-3/2} \mathrm{d}x$ to a trigonometric integral.

(5) (Final, 2008) Find the area inside the ellipse $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$.