**MATEMATIK Z1 ht 2012, TMV 138**

Chalmers tekniska högskola Datum: 2012-11-08 Tid: ca 30 min.

## Lösningsförslag till dugga 1(b) i Matematisk analys, 20121108

**1** (a) **sann**

(b) **falsk**

(c) **sann**

(d) **sann**

1. (a) 0

(b) $\frac{2}{3}$

**3**

$$\int \frac{x}{\sqrt{1-x^2}}\,dx \;=\; \left\{\sqrt{1-x^2}=t,\; x=\sqrt{1-t^2} \Rightarrow dx = dx = \frac{-2t}{2\sqrt{1-t^2}}\right\} =$$

$$= \int \frac{\sqrt{1-t^2}}{t}\cdot\frac{-t}{\sqrt{1-t^2}}dt = -\int dt = C - t = C - \sqrt{1-x^2}\,.$$

**Svar:** $\int \frac{x}{\sqrt{1-x^2}}\,dx = C - \sqrt{1-x^2}\,.$