

EXAM: Matematisk statistik och diskret matematik D (MVE055/MSG810)

Time and place: Wednesday 27 August 2014, em, V.

Jour: Alexey Lindo, tel. 0763278070

Aids: Chalmers approved calculator and at most one (double-sided) A4 page of own notes.

Grades: Maximal points : 10. You must score at least 3 points on this exam. For the final grade your score here will be combined with scores from the VLE tests on scale 3: 12 points, 4: 18 points, 5: 24 points.

Motivations: All answers/solutions must be motivated.

Language: You may write your answers in either english or swedish.

1.

$$g(x) = \frac{2x(x^2 + x + 1)}{(1 - x^4)}.$$

2. (a) $F(x)G(x)$;

(b) $1 - (1 - F(x - 0))(1 - G(x - 0))$;

(c) $F(\frac{x}{2})G(x)$.

3. No. For example

$$\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix} = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}^2 = \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}^2.$$

4. $\hat{\theta} = 2\bar{X}$; $\mathbb{E}(\hat{\theta}) = \theta$; $\text{Var}(\hat{\theta}) = \frac{\theta^2}{3n}$.