Vorlesung 4

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Kapitel 1

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a)

$f^X(x) = 0$ für $x < 0$

$$f^X(x) = \int_{-\infty}^{\infty} f(x,y)dy = \int_{-\infty}^{\infty} \frac{1}{8}(x^2 - y^2)e^{-x}dy = \int_{-x}^{x} \frac{1}{8}x^2e^{-x} - \frac{1}{8}y^2e^{-x}dy$$

$$\frac{1}{6}e^{-x}x^3$$

$$f^Y(y) = \int_{-\infty}^{\infty} f(x,y)dx$$

$$\lim_{n\to\infty} \int_0^n f(x,y)dx$$

d)

$$P(X < 3, -1 < Y < 1) = \int_{-1}^{1}\int_{3}^{\infty} f(x,y)dxdy$$

-1

1

0

1/8

1/8

1

1/8+c

1/8-c

2

1/4

1/4

1