Facitliste, Calc prøveeksamen 1

(1)
- $y(x) = e^x \sin(2x)$
- $y(x) = c_1 e^x \sin(2x) + c_2 e^x \cos(2x) + \frac{19}{25} + \frac{2}{5}x$, $\qquad c_1, c_2 \in \mathbb{R}$.

(2)
- 6
- 2
- -2
- 12.

(3)
- $f_x = 2 + y - 2y^2$
- $f_y = 1 - 2y + x - 4xy$
- $x + 1 + 2(y - 1) = z - 8$.

(4)
$$\int_0^1 \int_{x^3}^{x^2} x^2 dy\, xx = \frac{1}{30}.$$

(5) $\{2i, 1 - i\}$.

(6) $2(x - 1) + 6(y - 1) + 16(z - 2) = 0$

(7)
- $\nabla f(x, y, z) = [e^{x+y}, e^{x+y}, 4z]^T$
- $\frac{5\sqrt{6}}{3}$.

(8)
-
$$m = \int_0^{2\pi} \int_0^1 \int_{r^2}^1 z^2 r\, dz\, dr\, d\theta = \pi/4$$
-
$$\bar{z} = \frac{1}{m} \cdot \int_0^{2\pi} \int_0^1 \int_{r^2}^1 z^3 r\, dz\, dr\, d\theta = 4/5.$$

(9) #2 er ok.

(10) S,S,F,F.

(11) F,F,S,S.

(12)
- max
- min.