

Facitliste, Calc prøveeksamen 2

(1) $2x + \frac{4}{3}x^3$.

(2) • $\nabla F = \begin{bmatrix} 4x^3 + 4xy^2z^2 \\ 4y^3 + 4x^2yz^2 \\ 4z^3 + 4x^2y^2z \end{bmatrix}$
• $20(x-1) - 20(y+1) + 40(z-2) = 0$.

(3) • $m = \int_0^\pi \int_0^2 r^2 dr d\theta = \frac{8}{3}\pi$
• $\bar{y} = \frac{1}{m} \int_0^\pi \int_0^2 r^3 \sin \theta dr d\theta = \frac{3}{\pi}$.

(4) • 4 rødder
• $[w = 3, i] \Rightarrow z \in \{\pm\sqrt{3}, \pm\frac{\sqrt{2}}{2}(1+i)\}$.

(5) • $D = \{(x, y) : x^2 + y^2 \leq 1/4\}$.
• $f_x = \frac{-8x}{\sqrt{1-16x^4-32x^2y^2-16y^4}}$, $f_y = \frac{-8y}{\sqrt{1-16x^4-32x^2y^2-16y^4}}$.

(6) • (0, 0)
• Max: 1, Min: -1.

(7) • $y(x) = e^{-x} + e^{-x}x$
• $y_p(x) = -1/2 - \frac{3}{50} \cos(2x) + \frac{2}{25} \sin(2x) + \frac{1}{9} e^{2x}$.

(8) $\kappa(t) = \frac{15}{[25 - 16 \cos^2 t]^{3/2}}$.

(9) 3. mulighed er OK.

(10) F,F,S,F.

(11) F,S,F.

(12) $f(\theta) = 2 + 2 \cos(4\pi), 0 \leq \theta \leq 2\pi$.

MN/17.05.2011