

Matematisk analys del1
Dugga 2
2024-03-08, kl 8.00-11.00

1.

a. $D_f = [0,2], V_f = \left[-\frac{3\pi}{2}, \frac{3\pi}{2}\right]$

b. $\frac{-4\sqrt{5}}{9}$

c. $f(x) = 2 \sin\left(2x + \frac{5\pi}{6}\right)$.

2.

a. $-1 \leq x < 0$ eller $1 < x \leq 4$

b. $a = \frac{2}{3}$

3.

a. $\frac{1}{2}$

b. $-\frac{3}{2}$

c. $\frac{3}{2}$

4.

a. $f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h} = \dots = \frac{5}{2\sqrt{5x+1}}$

b. $f'(x) = \left(6x - \frac{1}{3x^2}\right) \cos(3x) - \left(9x^2 + \frac{1}{x}\right) \sin(3x)$

c. $f'(x) = \frac{1}{x^3} \frac{1}{\left(1+\frac{1}{x^2}\right)\sqrt{1+\frac{1}{x^2}}}$