Math 132 082 Sec. 1 & 7 Dr. Uwe Schauz

Quiz 1

a.) Determine $\lim\limits_{x\to -1} \dfrac{x^3+x^2-2x-2}{x^3+1}$.

b.) Let $f(x) := x\,e^{(x-2)}$, determine $\lim\limits_{h\to 0} f(2+h)$.

Quiz 2

a.) Let $P(q) := 3q - 2q^2 - \dfrac{2}{\sqrt[5]{q^2}}$, determine $P'(q)$.

b.) Let $f(x) := \dfrac{3x^2-2}{x}$, determine $f'(-1)$.

Quiz 3

a.) If $y = \sqrt{2x} + \dfrac{1}{\sqrt{2x}}$ then $\dfrac{dy}{dx} = \ldots$

b.) If $c = \dfrac{5q^2}{\sqrt{q^2+1}} + 5000$ then $\dfrac{dc}{dq}\Big|_{q=0} = \ldots$

Quiz 4

a.) If $g(x) = 2^{\sqrt{x}} \cdot \log_2(\sqrt{x})$ then $g'(x) = \ldots$

b.) The tangent to the curve $y = \ln(e\cdot x)$, at $x=1$, intercepts the y-axis at $y_0 = \ldots$

Quiz 5

a.) In which point does the tangent at the curve $x^2y + xy^2 = 1$, through $\left(\frac{1}{\sqrt[3]{2}}, \frac{1}{\sqrt[3]{2}}\right)$ intersect the y-axis.

b.) Let $y = x^x$ determine $\dfrac{d^2}{dx^2}y$ as a function in x.

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Quiz 6

a.) Determine all asymtotes and axes-intercepts of $f(x) := \frac{x^2-x-2}{x-1}$.

b.) Determine the maximum value of $f(x) := \frac{x}{x^2+2}$ in the closed interval $[-\sqrt{8}, \sqrt{8}]$.

Quiz 7

a) Let $y'' = \frac{1}{x^2}$, $y'|_{x=1} = 2$, $y|_{x=1} = 6$. Determine y.

b.) Determine $\int \frac{4}{(2x-1)^3}\,dx$.

Quiz 8

a) $\int e^{-x} - x^{-2} - x^{-1} - \frac{1}{\sqrt{x}}\,dx = \ldots$

b) The area between the curves $2y^2 = x-1$ and $y^2 - x + 2 = 0$ is equal to ...

Quiz 9

a) Let $f(x) = \cos^2(2x)$. Determine $f'(\frac{\pi}{8})$.

b.) Determine $\int_0^{\pi/2} \cos^3(\frac{x}{2}) \sin^3(\frac{x}{2})\,dx$.

Quiz 10

a.) Let $f(x,y,z) = xy\ln(2y-z)$. Determin $f_x(1,1,1)$, $f_y(1,1,1)$, $f_z(1,1,1)$

b.) Let $f(x,y) = \cos(xy+\pi)$, determine $f_{xy}(\pi, \frac{1}{2})$.

Quiz 11 Let $f(x,y) = x^2y^2 - x^2 - y^2$

a.) Determine $f_x, f_y, f_{xx}, f_{yy}, f_{xy}$ and $D(x,y)$.

b.) Find all critical points. Is $(0,0)$ a rel. maxima? Why?