1 a) i) $\frac{-\frac{2}{3}+\frac{3}{9}}{\frac{1}{4}-\frac{5}{12}} = \frac{24+12}{9-15} = \frac{36}{-6} = -6$

TNV157 161027

ii) $0 \leq |x-2| \leq -1 \Rightarrow$ Oföly smr, dvs finns ingen x som löser olikheten

iii) $|x-2|=1$

b) i) $D\left(\frac{\cos x}{2+\sin x}\right) =$

ii) $D(\sin(x+\sin(2x))) =$

c) i) Sant. enl. def.

ii) Ej sant, motex. t. ex $h(x)=|x|$

iii) —"— , motex, t.ex. $h(x)=x^2\sin\frac{1}{x}$, $h(0)=0$

d) $f(x)=3x^5+5x^3+x$, $f'(x)=15x^4+15x^2+1>0 \Rightarrow f^{-1}\ \exists$

$(f^{-1})'(0)=1/f'(f^{-1}(0)) = 1/f'(0) = 1/1 = 1$

e) $\cos\left(\underbrace{\frac{1}{2}\arctan\frac{4}{3}}_{\alpha>0}\right) = (+)\sqrt{\frac{1+\cos\alpha}{2}} = \sqrt{\frac{1+3/5}{2}} = \frac{2}{\sqrt{5}}$ ty $3\sin\alpha = 4\cos\alpha \Rightarrow \cos\alpha = 3/5$

f) f'' existerar i (a,∞), $f(x)>0$, $f'(x)<0$ $f''(x)\leq 0$ $\forall x \in [a,\infty)$

2) a) ekv. π $P_1(4,-\frac{1}{2},0)$ $P_2(\frac{1}{2},\frac{3}{2},\frac{5}{2})$ $P_3(1,\frac{7}{2},1)$ $\bar{n}$

b) $dist(P_0,\pi)=d$ $P_0=(1,2,4)$

c) plan $\parallel \bar{n}$ på avstånd d

3) $f(x)=\frac{3x^2}{x^2+x-2}$

4)

$$\left(\begin{array}{ccccc|c} 0&0&1&0&1&1\\ 1&2&4&1&1&0\\ 2&4&9&2&k&0\\ 0&0&2&1&1&1 \end{array}\right)$$

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