Tugas Responsi 2 Kalkulus Kelompok 4



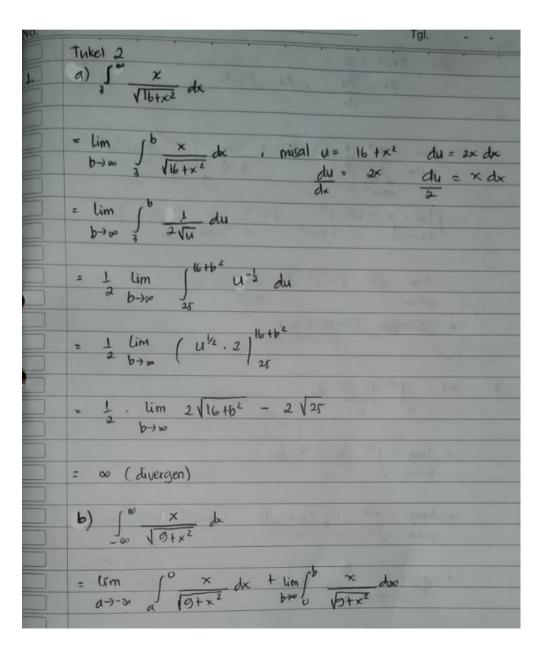
Kelompok 4:

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IPB University Departemen Statistika 2022

(a)
$$\int_3^\infty \frac{x}{\sqrt{16+x^2}} \ dx$$

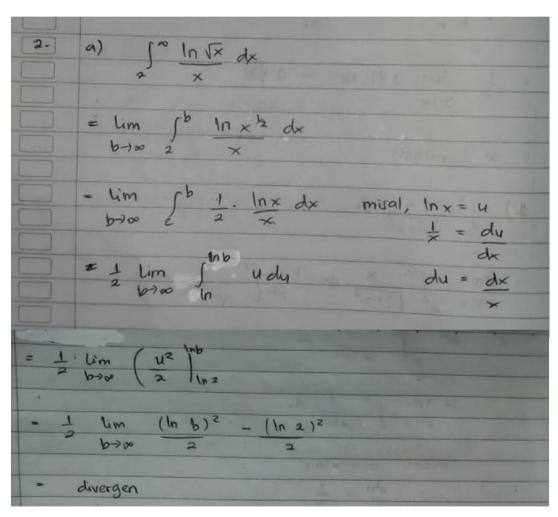
(b)
$$\int_{-\infty}^{\infty} \frac{x}{\sqrt{9+x^2}} \ dx$$



No.	
	mis, O+x2 = U
	mus, ofx = u
	$ax = du$, $du = a \times dx$
	dx
	= lim
	47-5 2 b+10
	$= 1 \lim_{2 \to \infty} \left(2 u^{\frac{1}{2}} \right)^{\frac{9}{100}} + 1 \lim_{2 \to \infty} \left(2 u^{\frac{1}{2}} \right)^{\frac{9+b^2}{2}}$
	24-00 (lota2 2 6-700)
	= lim V0 - V0+a2 + lim V0+b2 - V9
	a7-00 b-700
	= divergen $(-\infty + \infty)$
	The state of the s

(a)
$$\int_{2}^{\infty} \frac{\ln \sqrt{x}}{x} dx$$

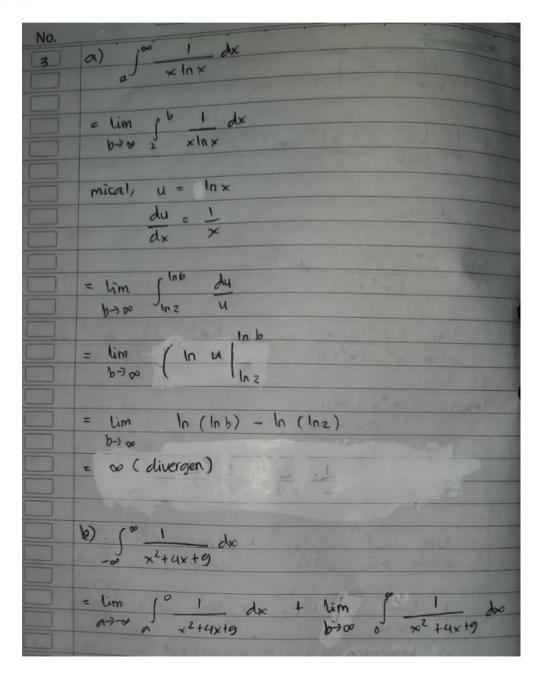
(b)
$$\int_{-\infty}^{\infty} \frac{x}{(x^2+4)} \ dx$$



100		The same of	400
b) (× ×	dx		
b)	4)	154	119,1, 2
= lim po	× dx +	Lim	$\int_{0}^{b} \frac{x}{(x^{2}+4)} dx$
a>-0 a (-	x²+4)	6->0	0 (x2+4)
misal, x^2+4	= u		
2×	= du		
	dx		187.19-1017
d	u = x dx		and a
	2 3 3/11		marid .
,	,		1.211.
- lim 5	du +	- lim	1 b2+4 d4
017-00 a2+4	24	6700	4 24
= 1 lim	. 4		1 b2+4
= 1 lim	(Inularty	+ 1 lim	(In u)
2 00 00	97.9		1 . (1
= 1 lim	[In 4 - Inc	a2+41) +	1 Lim (In (62+4)-1n4)
a-1-20			
= 100			

(a)
$$\int_{2}^{\infty} \frac{1}{x \ln x} \, dx$$

(b)
$$\int_{-\infty}^{\infty} \frac{1}{x^2 + 4x + 9} dx$$



= $\lim_{\alpha \to -\infty} \int_{\alpha}^{0} \frac{1}{(x+2)^{2}+5} dx + \lim_{\alpha \to -\infty} \int_{\alpha}^{0} \frac{1}{(x+2)^{2}+5} dx$ = $\lim_{\alpha \to -\infty} \int_{\alpha}^{0} \frac{1}{(x+2)^{2}+(\sqrt{5})^{2}} dx + \lim_{\alpha \to -\infty} \int_{\alpha}^{0} \frac{1}{(x+2)^{2}+(\sqrt{5})^{2}} dx$ = $\lim_{\alpha \to -\infty} \frac{1}{\sqrt{5}} \frac{1}{(x+2)^{2}+(\sqrt{5})^{2}} = \lim_{\alpha \to -\infty} \frac{1}{\sqrt{5}} \frac{1}{\sqrt{5}} = \lim_{\alpha \to -\infty} \frac{1}{\sqrt{5}} \frac{1}{\sqrt{5}} = \lim_{\alpha \to -\infty} \frac{1}{\sqrt{5}} = \lim_{\alpha$

(a)
$$\int_2^\infty \frac{1}{x(\ln x)^2} \ dx$$

(b)
$$\int_{-\infty}^{\infty} \frac{x}{e^{|x|}} dx$$

Tgl.

a)
$$\int_{2}^{\infty} \frac{1}{\sqrt{(\ln x)^{2}}} dx$$

mis: $u = \ln x$,

 $du = \frac{1}{\sqrt{(\ln x)^{2}}} du = \frac{1}{\sqrt{(\ln x)^{2}}} dx$

$$= \lim_{b \to \infty} \int_{\ln x}^{\ln b} du$$

$$= \lim_{b \to \infty} \left(-u^{-1} \right) \int_{\ln x}^{\ln b} dx$$

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b) $\int_{-\infty}^{\infty} \frac{\pi}{e^{|x|}} dx$ $= \int_{-\infty}^{\infty} \frac{\pi}{e^{|x|}} dx + \int_{-\infty}^{\infty} \frac{\pi}{e^{|x|}} dx \qquad | |x|_{-\infty}, x > 0$ $= \lim_{\alpha \to -\infty} \int_{0}^{\infty} \frac{\pi}{e^{|x|}} dx + \lim_{\alpha \to -\infty} \int_{0}^{\infty} \frac{\pi}{e^{|x|}} dx \qquad | |x|_{-\infty}, x < 0$ $= \lim_{\alpha \to -\infty} \int_{0}^{\infty} \frac{\pi}{e^{|x|}} dx + \lim_{\alpha \to -\infty} \int_{0}^{\infty} \frac{\pi$