Good vs Bad Cheat Sheets

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GCSs vs BCSs

There are Good Cheat Sheets (GCSs) and there are Bad Cheat Sheets (BCSs).

Don't make BCSs! Make GCSs!

Inspiration of GCSs

	VEGT	OR GALG	ULUS	M	ath 53m
	CURL CU	rl F= VX= (AR - DQ AR			vettive field Fy(Ny, 2) = Q INTEGRATIN
	- 111			EN F=V	F 7F Felougiz) = R To regard
	VXF= 8x 84	F=(RA,R) curl(pf)=		-(P,Q,R	DIFFERENTIATE & (ullowsTALTS)
	PQI	2 (4b) × 4	operation PF	MEMORY	AND CAM PARE TUP CAULT DURITIN
	DIVERGENC	E divE=D.F. E++		the Ball	P.O. R THE DIVEROPUCE OF ACURC IS O
-	-		VECTOR F Cartlal Darl		(P_{Q_1K}) div $(curl F) = 0$ $\nabla \cdot (\nabla d) = 0$ $\nabla = DELL OPERATOR \nabla^2 = UPERATOR$
	WHICH OPERATIONS	CURL DXF VECTORF	VECTOR F (AS WITHING	apatests)	du(pr)= P. VF= 5 + 5 + 5
			Sodarf (Dot PROD	UCT)	VILL SKA SAL SAL SAL SAL
1	VECTOR FORMS OF				income Par (D. D. a) 2-0 Vicker
	GREEN'S THEREM	$\int \vec{F} \cdot d\vec{r} = \iint (curl \vec{F}) \cdot \vec{k} d\vec{r}$	$f \int \vec{F} \cdot \vec{n} ds = \int \int$	div Forgi	dA curiz= (8-52) z
1	PARAMETRIC S	URFACES = = (u.v) = (stu	Y), 4(4, x), 3(4, Y))	Xax(u)	V) 4=4(4,V) 3=2(4,V)
	NORMAL VECTOR	N = PAXTY UNTNORMAL)		PARAMET	
		Pr=(xy, 4y, 2y) 11511= 11(y3x83		URFICE AN	ZEA AUS/= 1) IM CONTROL = 1) INITIAN
		== f(x,y) D6(x,y)	SPLANE IN	A(3)= 55	$\left[\left[\frac{\partial (x_1,y_1)}{\partial (x_1,y_1)} \right]^2 + \left[\frac{\partial (x_1,y_1)}{\partial (x_1,y_1)} \right]^2 + \left[\frac{\partial (x_1,y_1)}{\partial (x_1,y_1)} \right]^2 dA \right]$
	X=x 4=4 8=	f(xiy) Px=(10,fx) Py=(0,1,f	Carlo Kex 479	b	
	7x × ry= (-fx,-)	En. 1) IFA XP3U= 1 fx = + + 1	1	4(s) = {5	
	SPHERE X= Bsind	ceso y=0sindsine z= \$coso E	LLIPSOID X=asinda	Trates es	TORUS 2 X= brose + 4.005 of cose y= balme + 4.005 of sine
		21 05 \$ 57 GIVEN 5: 7(\$,0)			2. asince Trotowie
4	SURFACE	SFGGy, Z)dS= SF(P(4,v)) F	www.dldA GRAPHS 2		TESTES U
ą	INTEGRALS	S D	SSF(x,y,a)c		D Q
		# Sixeds == # Sigeds == # Si			
	FLUX	d3=SSF. Rds SURFICES	D AHR OUTWIRD	John Marsh	ds=n1174+7711dA ds=1172+7711dA ds=rds ds=r04A (1111-1172+7711dA
1	C GAD IC Sealty	1 (5 = 1 = (5 (-DA - CA + F))			de SF. P. (P. KF) He SSF. N.A DE PARAMENT
			-Kyu K= Conductivity		
	THINK OF .	Country Section and Sector	2) JV (CA. " 2007. CE.	22422	da Stadito Stanladyreda SSERAJds SSEAdd
	INTEGRALS	SINGLE DOUBLE TRIPL	E LINE LENGTH CAN	X LAEY LA	ER Fripa, R) INTEGANS SUGTACE FLUX
		HEOREMS OF CI		TOBE	AGGUMES SMOTH REDENS, CONTINUOUS 2ND ORDER PARTIAL DERIVATIVES, NO
		HEOREM'S OF CA	TECHEN S	FOR	OBIENTATION ,
	FUNDAMENTAL	$\int_{F(x)dx=F(b)-F(a)}^{b}$		ALL S'S REDUCE TO	RELATES AN INTEGRAL OF A "DERIVATIVE"
	GALCULUS	$a) + (x) dx = \Gamma(b) - P(a)$	a b	THESE	TO AN INTEGRAL OF THE OR XXIN NO PLACTON OVER 2 THE BOOND AREN (ALL 5 THEOREMS) WORK THE ACINIE A CLEVED CHEVE IN
	FUNDAMENTAL THEORE M FOR LINE INTEGRALS	$\int \nabla f \cdot d\vec{r} = f(\vec{r}(\omega)) - f(\vec{r}(a))$	5 T(b)	FOR COMPRESSION VECTOR	
		c	子(4)	FIELDS	
-	GREEN'S	(1/20 -2P) JAS (De DO)	Co	FOR	WHICH OF PROFINIST NEED TO TAKE SHART LIVE S'S
-	THEOREM) (an - by) dA= (Pdx+Qdy		CHIEVES	SX 1 A CALED CURRE AND 1 SS IS EASIER
-		2		FOROPEN	ST PHONE CHARGE IF SAME WANT THE
-	STOKE'S	(curl F.ds=(F.dr	0	SARFACES	UNTH SEVERAL HELES SAME BAUNDARY SCHERT & SAME CLUBNE, C M SCHERT & S
1	THEOREM	1)	5	WITH HALES	
1	DIVERGENCE		1 19	FAR	WORKS FOR PUNICE ISSNED -SSE & SSE &
	THEOREM	(((divFdV=(F.ds		CLOSED SURTACES	SALID GEORITS LEE MADE TAKING 1 SCC IS
	INCORDIN	ES		Sakiwas	ST BANTER THE SELERAL FLOR S
	HIERAPCH	Y OF DIMENSIO	N HIGHER DIMEN	DEDIN	CURL & DIVERSENCE IDENTITIES, PF
	THURACE	IT OT DIMENSIO	Some WUPBRCEIV	ABLE)	div(Fig) divF + divo cort(Fig)= cure route
		150 00 0	CURVED .	4-0 SPACE	div(FF)= FdivF+ F.VF div(PfxNg)=0
	LINE CURVE	STALE CLEVE PLANE PROVIN SUPERCE	SPACE :	-	curl(++)=fcurl++++++ curl(pf)=0
	10-10 46-2D	10-30 20-20 20-30	30-30 80-40	40-40	div(Fn6)= GecariF-F. curl6 11
	ut to	Same unto	R ³ CLOSED	07 W	Curl (curl E) = Y(dYE) = Y"E
	BORD CHOICE CHEV	E CUTED CHANE SOLLAS CLOSED S LIKE	E SOLLD SPACE	SDLID	$\nabla(\vec{r}\cdot\vec{c})=(\vec{r}\cdotq)\vec{c}*(\vec{c}\cdotq)\vec{r}\cdot\vec{r}\times \text{carris}+\vec{c}\times \text{carris}$

	- B ² = (A+B)	AL POLYNOMIALS	$\lim_{x \to 0} \frac{\sin x}{x} = 1 \lim_{x \to 0} \frac{x}{\sin x} = 1$
1x1- (-(x) IF x<0	- B ³ = (A-B)		lim f(x)=L if and only if
	+ B3 = (A+B)		$x \neq a$ $\lim_{x \neq a} f(x) = L = \lim_{x \neq a} f(x)$
Limits = = =			Limits at a0
lim f(x)= on when lim 1 x-rat f(x)=	o and f(x)>1	o when x >a	$\lim_{x \to \infty} F(x) = \lim_{x \to 0^+} F(\frac{1}{x})$
$\lim_{X \to a^+} F(x) = -op \text{ when } \lim_{X \to a^+} \frac{1}{f(x)} =$	o and f(x)<	0 when x>q	DIVIDE EACH TERM BY THE HIGHEST POWER OF X
LIMIT LAWS FOR USE IN PROOF	s	E- 6 Notation	N
$ (1) \lim_{x \to a} [f(x) + g(x)] = \lim_{x \to a} f(x) $) + lim g(x) X+q g(x)	lim f(x)=L	- for any ε>Ο we can find δ>Ο such that Whenever
$ (2) \lim_{X \to a} [f(x) - g(x)] = \lim_{X \to a} f(x) $) - lim g(x) x7a g(x)		5 then If(x)-LIKE any 5 smaller than 5max will work
$ \Im_{x \neq a}^{\lim} [cf(x)] = c \lim_{x \neq a} f(x) $		Ţ.	A f(x) PHUSICS
(f(x)g(x)] = 11m f(x) . 11m f(x) . 11m f(x) . 11m	m g(x) 29	1+E	d(t) $v(t)$ $b(t)Distance Valecity Acceleration$
$(\widehat{s}) \lim_{X \to q} \frac{f(x)}{g(x)} = \frac{\lim_{x \to q} f(x)}{\lim_{X \to q} g(x)} $ is $\lim_{X \to q} \frac{f(x)}{g(x)}$	g (x) ≠ 0	L-E 4-5 9	
X+4 5 ***			s d ter i ren - j ater
$\frac{\text{DERIVATIVE BY DEFINITION}}{\lim_{h \to 0} \frac{f(x+h) - f(x)}{h} = f'(x) =$	AF(x) . d F()	Slope of a line three points (x,y,),(x	
	first on B most	X1	Form $y=m(x-a)+b$ or $y-b=m(x-a)$
DERIVATION RULES			
$\frac{d}{dx} \times^{n} = n(x^{n-1})$	K d f (x)	$\frac{1}{x} \left[f(x) + g(x) \right] = \frac{d}{dx}$	$ \frac{1}{x} F(x) + \frac{d}{dx} g(x) \begin{bmatrix} d \\ d \\ d \\ x \end{bmatrix} C = 0 $
PROMACT RUL B d f(x)·g(x)= F'(x)g(x) + f(x)g'(x) dx	$\frac{d}{dx} \frac{f(x)}{g(x)} = \frac{f'(x)}{f(x)}$	af x)q(x)=f(x)g'(x) [g(x)] ²	$\frac{d}{dx} f(g(x)) = f'(g(x)) \cdot g'(x)$
INTERMEDIATE VALUE THEOREM	SQUEEZE THE	OREM	
Suppose that f is continuous			an open interval that contains
on the closed interval [9,6] and lot N be any number		ssibly at a) and	New All
strictly between f(a) and f(b).		nh(x)=L Then	
Then there exists a number	34	h(x)	AUADRATIC FORMULA
C in (a,b) such that F(c) = N.			-b + b2 - 4ac
A Day x	«]	a +x	24

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$ \begin{array}{c} \lim_{n \to \infty} \lim_{n \to \infty} \frac{1}{n} \frac$
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a brades and the and the second and the
dy f(x) and dy f(x) - (x) dy f(x) - (x)
$\frac{dy}{dx} = f(x) \Rightarrow y = f(x) dx \frac{dy}{dx} = \frac{g(x)}{g(x)} \qquad \qquad$
dy + (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)
$\frac{dy}{dx} + k(y) = \frac{1}{2} \frac{k(y)}{dx} - \frac$
$\frac{dy}{dx} + (x) \Rightarrow D(x)dx = \begin{cases} \frac{dy}{dx}, \frac{dy}{dy}, \frac{dy}{dx}, $
$\frac{dy}{dx} + (x) \Rightarrow D(x)dx = \begin{cases} \frac{dy}{dx}, \frac{dy}{dy}, \frac{dy}{dx}, $
$\begin{array}{c} \frac{dy}{dt} + (t_{i}) \approx f_{i} f_{i} f_{i} \\ \frac{dy}{dt} + f_{i} f_{i} \\ \frac{dy}{dt} + f_{i} \\ \frac{dy}$
$\begin{array}{c} \frac{\partial f}{\partial t} + (x_{1}) \geq \left f(x_{1}) + \frac{\partial f}{\partial t} + \frac{\partial f}{\partial t} + \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} + \left f(x_{2}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}{\partial t} + \left f(x_{1}) + \frac{\partial f}{\partial t} \right \int_{t}^{t} \frac{\partial f}$
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$ \begin{array}{c} \frac{dJ}{dr}_{+} + (c_{1}) \in [0, dr, d] \\ \frac{dJ}{dr}_{+} + (c_{1}) (c_$
$\begin{array}{c} \underbrace{df}_{k} + (\omega) = \int \left[\int dt_{k} \left[\frac{d}{dt_{k}} + \int dt_{k} $
$\begin{array}{c} \underbrace{dJ}_{n} + (x) = b \left[b \left(dx - \frac{1}{2} \right) $
$\begin{array}{c} \underbrace{df}_{n} + (\alpha) = 0 \\ \\ \underbrace{df}_{n} + (\beta) = 0 \\ \\$
$\begin{array}{c} \frac{dJ}{dt} + (0) = \left 0 \right \left 0 \left 0 \left 0 \right \left 0 \left 0 \left 0 \right \left 0 \left 0 \right \left 0 \left 0 $
$ \begin{array}{c} \frac{\partial f}{\partial t} + \left(\sum_{i=1}^{n} \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} \right) = \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} + \frac{\partial f}{\partial t} \right) = \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \frac{\partial f}{\partial t} + \left(\frac{\partial f}{\partial t} \right) + \left(\frac{\partial f}{\partial t} \right) + \left(\frac{\partial f}{\partial t} \right) + \left(\frac{\partial f}{\partial t}$
$ \begin{array}{c} \frac{dJ}{dt} + (D) = \left \int_{0}^{\infty} \int_{0}^{$
$ \begin{array}{c} \frac{d}{dt}_{1} + (c) = \left(\frac{1}{2} \right) \left(\frac{d}{dt}_{1} + \frac{d}{dt}_{1} + \frac{d}{dt}_{1} + \frac{d}{dt}_{2} + \frac{d}{$
$\begin{array}{c} \frac{\partial f}{\partial t} < \left(\sum_{i=1}^{n} \left(\sum_{j=1}^{n} \left(\sum_{i=1}^{n} \left(\sum_{j=1}^{n} $
$ \begin{array}{c} \frac{d}{dt}_{1} + (c) = \left(\frac{1}{2} \right) \left(\frac{dt}{dt}_{1} + \frac{dt}{dt}_{2} + $
$ \begin{array}{c} \frac{d}{dt}_{1} + (d) = \left $
$ \begin{array}{c} \begin{array}{c} \begin{array}{c} d_{1} + (c) = b_{1} \left(b_{1} + b_{2} + b_{2} + b_{3} + b_{3}$
$\begin{array}{c} \begin{array}{c} \left(d_{1}^{2} + (\delta_{1}^{2} + \delta_{2}^{2}) \left(d_{2}^{2} + $
$ \begin{array}{c} \frac{d}{dr}_{+} \left(-\frac{d}{dr} \right) = \left(\frac{dr}{dr}_{+} \left(\frac{dr}{dr} \right) + \frac{dr}{dr}_{+} \left(\frac{dr}{dr} \right) = \left(\frac{dr}{dr}_{+} \left(\frac{dr}{dr} \right) + \frac{dr}{dr}_{+} \left($
$\begin{array}{c} \begin{array}{c} \begin{array}{c} \left(f_{1} + f_{2} \right) \left(f_{2} + f_{2} + f_{2} \right) \left(f_{2} + f_{2} + f_{2} + f_{2} \right) \left(f_{2} + f_{2} + f_{2} + f_{2} + f_{2} \right) \left(f_{2} + f_{2} $
$ \begin{array}{c} \frac{d}{dt}_{1} + (d) = \int_{\mathbb{R}^{d}} \int_$
$\begin{array}{c} \begin{array}{c} \begin{array}{c} \left(f_{1} + f_{2} \right) \left(f_{2} + f_{2} + f_{2} \right) \left(f_{2} + f_{2} + f_{2} + f_{2} \right) \left(f_{2} + f_{2} + f_{2} + f_{2} + f_{2} \right) \left(f_{2} + f_{2} $

Inspiration of GCSs

- <u>https://www.cfa.harvard.</u>
 <u>edu/~afriedman/CheatSheetsIndex.html</u>
- <u>https://www.cfa.harvard.</u>
 <u>edu/~afriedman/Images/CheatSheetScans/MAT</u>
 <u>H53_1.jpg</u>

Horrors of BCSs!

Unit Circle: $0^{\circ}=0$ or $2\pi=(1,0)$ $30^{\circ}=\pi/6=(\sqrt{3}/2,1/2)$ $45^{\circ}=\pi/4=(\sqrt{2}/2,\sqrt{2}/2)$ $60^{\circ}=\pi/3=(1/2,\sqrt{3}/2)$ $90^{\circ}=\pi/2=(0,1)$ $120^{\circ}=2\pi/3=(-1)^{\circ}=10^{\circ}$ 1/2 ,√3/2) 135°=3π/4 =(-√2/2, √2/2) 150°=5π/6=(√3/2, 1/2) 180°=π=(-1 0) Sine=Opp/Hyp Cos=Adj/Hyp Tan=Opp/Hyp Practice Problems: Differentiate In [cos²x+/ (e^x(x+2)) xarctan (x-1) 4^x(x³) xx)=In((cosx)²)-In(e^x(x³+2))= 2In(cosx)-(x³+2)= sx)-x³-2 So, the Dar_Is 2[1/(cosx))*(-sinx)-3x²-D=-2tanx-3x² f(x)=(arctan√(x-1))*(1)+(x)*(1/(1+(√x-1/2)*3/2(x-1))/(- ---- $\int \frac{1}{\sqrt{2}} \int \frac{1}{\sqrt{2}} \frac{1}$ where u= e^(2x)+4 and du= 2e^(2x)dx or 1/2du= e*(2x)dx So, 1/2 + 1/u du= 1/2 In {u}= In \(\not (e^(2x) + 1) + Compute the) following definite integrals $\begin{bmatrix} n^{4}d^{1} \\ \frac{1}{\sqrt{1}\sqrt{2}} \end{bmatrix} = \frac{1}{\sqrt{2}} \int_{x}^{c} \frac{1}{\sqrt{$ e^(sin(2x)). What's the largest inty, containing x=0 over which k(x) has an inverse funce? A funce has an inverse if and only if t is monotonic, so we must find the largest inty, containing x=0 through which k(x) is monotonic. Computing the derivative we have K = e^(sin2x) * cos2x *2= 2cos(2x)e^(sin2x). Notice that K (0)= 2, so k(x) is increasing through x=0, so we need to ind the largest inty, containing x=0 over which the func, stays increasing. To find where the graph of k starts to decrease we must find where the dedvative vanishes. 0=K'(x) = 2cos(2x)e^(sin2x) = cos2x =0 = 2x=m/2 + mk whence the critical points II this function occur at x = m/4 + m/2k = ... - 3m/4 , -m/4 , m/4 , 3m/4 ... The two nearest critical points to x= occur at x= ±m/4 so that is the largest monotonic inty. What is the domain of the the inverse func? The domain is simply the range of the or original func. so put ± 17/4 in for x in your eqn. for k(x) and you get [He and e]] W/O computing the inverse find the der, of k-1(x) at x=1 use the formula (FA-1)(a)=1 / (F'(FA-1(a))) that = 1/2. Compute the inverse func. of KA-1(x) to do that just solve +5 the eq. k(y) = x for y That = sin(2y) = thx = y = 1/2 arcsin(Inx). to check galculate the derivative of k^-1(x) So K^-1(x)=1/(2x(1-)) Inx Trand put 1 in for x and you get 1/2 Bacteria initial pop. 2000 triples every 4 hours dP/dt = kP formula 1/P+dP=kdt = 1 1/P dP= j kdt In/P/= kt+C P= ± e^(kt+C) = Ae^(kt)=P P(0)=2 So, P(t)=2e^(kt) 6=P(4)=2e^(4k) K= 1/4 In3 So, P(t)=2e^(((n3)/4)*t)

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Rules for Crisis MGT -What is going on? •Slew quints too EVER EPC CRESENCET

Speed waters

Comparison of the speed wat Scientific Mort (Federick Taylor) Develop nuics of motion, standard abork suplement profer sorting condition. Select worter two nails to the strop

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Horrors of BCSs!

- <u>http://komplexify.com/epsilon/2009/04/23/when-cheat-sheets-go-bad/</u>
- http://i.imgur.com/k0pQ35F.jpg?1
- <u>http://img.wonderhowto.</u> <u>com/img/original/16/80/63494460985769/0/6349446098576916</u> <u>80.jpg</u> (reddit: <u>http://www.reddit.</u> <u>com/r/EngineeringStudents/comments/1ax982/only_1_sheet_all</u> <u>owed_for_exam_no_problem/</u>)
- you get the idea...

GCSs in a nutshell

- neat, organized, legible
- hand-written (this is important!)
- material organized by subjects, not necessarily the order it was covered
- important formulas (don't forget prerequisite material!)
- important algebra tricks

BCSs in a nutshell

- messy, font too small, illegible
- no organization, just copied all the text or all the formals at randonm
- not hand-written (see second bullet)
- hard to find information

Making a GCS is a process

First, it helps to organize the material into sections (usually by chapters and sections, but not always). For example, group the limits material, group the continuity material together, group the derivative rules, group the derivative applications, etc etc. Next, you need to go through your notes and textbook highlighting key terms, definitions, special tricks, and sometimes the steps to follows. The key here is to use *short-cuts* to refresh your memory of a subject without having to be so formal about it (eg. writing the short-cuts +C/-0=-infinity, C/+infinity=0, etc). Sometimes you might include a solution to a tricky problem (eg. computing limits using the guidelines with a tricky algebra step). But don't go overboard here: only include a few--you should already know how to do the easy and medium level questions because you've practiced it lots and lots. You might want to include a section that recalls review material like algebra tricks (rationalize, exponent rules, solving various equations, etc).

After you've reviewed all the material, grouped it together intelligently, you are ready to write a nice, neat cheat sheet. The key is *organization* (so you can find what you need, when you need it) and *neatness*.

Benefits of GCS

- a natural part of the study process
- making one by hand aids memorization
- helps organize complex, difficult information
- helps put information *into context*
- helps reduce stress if allowed to use on exams
- and many more!

Good luck and make GCSs!

Created on September 30, 2014 for my Math 2610 class