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DERI

    \left( \frac{dy}{dx} \right) = \sqrt{2}     \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}    \left( \frac{dy}{dx} \right) = \sqrt{2}     \left( \frac{dy}{dx} \right) = \sqrt{2}     \left( \frac{dy}{dx} \right) = \sqrt{2}     \left( \frac{dy}{dx} \right) = \sqrt{2}     \left( \frac{dy}{dx} \right) = \sqrt{2}     \left( \frac{dy}{dx} \right) = \sqrt{2}     \left( \frac{dy}{dx} \right) = \sqrt{2}     \left( \frac{dy}{dx} \right) = \sqrt{2}     \left(
                                                                                                       \sqrt{2} \left( \frac{\cos^2 x}{\cos^2 x} + \frac{1}{2} \frac{\cos^2 x}{\cos^2 x} \cdot \frac{\sin^2 x}{\cos^2 x} \right) = \frac{\sqrt{2}}{2 - \sin^2 x} = \frac{\sqrt{2}}{1 + \cos^2 x}
                                           DER2

\frac{\left(\frac{1}{3}\right)^{\text{exesin} \times^2}}{\left(\frac{1}{3}\right)^{\text{aresin} \times^2}} = \left(\frac{1}{3}\right)^{\text{aresin} \times^2} \cdot \ln \frac{1}{3} \cdot \left(\text{aresin} \times^2\right)^2 = \left(\frac{1}{3}\right)^{\text{aresin} \times^2} \cdot \ln \frac{1}{3} \cdot \frac{1}{\sqrt{1-x^4}}

\left(\frac{2+\chi^2}{\sqrt{1+\chi^2}}\right) = 2\chi\sqrt{1+\chi^2} - \frac{\chi(2+\chi^2)}{\sqrt{1+\chi^2}} = 1+\chi^2
  = \frac{-2x - x^{3} + 2x + 2x^{3}}{(1+x^{2})^{3/2}} = \frac{x^{3}}{(1+x^{2})^{3/2}}
  \frac{(\mu + x)^{\frac{1}{x}}}{(\mu + x)^{\frac{1}{x}}} = (e^{\frac{1}{x}} \ln(x+1))' = (\mu + x)^{\frac{1}{x}} \cdot \left(\frac{1}{x(1+x)} - \frac{\ln(x+1)}{x^2}\right)
= (\mu + x)^{\frac{1}{x}} \cdot \frac{x - (x+1) \ln(x+1)}{x^2 + (\mu + x)} = (\mu + x)^{\frac{1-x}{x}} \cdot \frac{x - (x+1) \ln(x+1)}{x^2}
  10
                                  DERF
                                       \left(\frac{Sin\lambda x+1}{Sinx-cosx}\right) = \frac{2\cos 2x \left(Sinx-cosx\right) - \left(\cos x + sinx\right) \left(Sin2x+1\right)}{Sinx-cosx} = \frac{2\cos 2x \left(Sinx-cosx\right) - \left(\cos x + sinx\right) \left(Sin2x+1\right)}{Sinx-cosx}
                                           = -2 (cosx - sinx) (cosx -sinx) (cosx + sinx) - (cosx + sinx)(sinex+1)
                                                                                                                                                                                                                                             1-8m2x
                         = (cosx + 9,hx) [-2 + asinax - sinax -1) (cosx +sinx) (sinax -3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1-sm2x
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\left(e^{-x} \frac{x-2}{(1-x)^2}\right) = -e^{-x} \frac{x-2}{(1-x)^2} + e^{-x} \frac{(1-x)^2 + 2(1-x)(x-2)}{(1-x)^4} =
                                                                            = \ell^{-x} \cdot (\ell^{-x})(\ell^{-x}) + \ell^{-x} + \ell^{x-y} =
= e^{-x} \frac{2-2x-x+x^2+1-x+2x-y}{(1-x)^3} e^{-x}
                                                                            DERF
 (l2x (30083x - 28M3x)) = Re3x (30083x - 25M3x) +
  + e 2x (- gsm 3x - 0 cos 3x) = e 2x (6008 3x - 4sm 3x
  - 95m3x -60033x) = -13 sin 3x. 82x
((ex + e-x) e032x) = ( c032x ln (ex+e-x)) =
                                                                            B
                                                                            = (ex+e-x) cos2x (-2 sin2x ln(ex+e-x)+ cos2x ex+e-x)
                                                                            1
 DERG (3 SIN 2 2) = 3 SIN 2 M3 . 2 SIN 2 . COS 2 . 2 =
        = 3 sm = 2. ln 3 . 2 . sfnx
 DER 10
 \frac{13ER10}{(2 \operatorname{avcctgV}_{x^2+1})} = \ln 2 \cdot 2 \operatorname{avcctgV}_{x^2+1}' - \frac{1}{1+x^2+1} \cdot \frac{1}{2} \cdot \frac{1}{\sqrt{x^2+1}} =
    = ln 2 · 2 arectg (x²+1) - x 

(x²+2) V x41
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DEKH (x ln (x + Vx2+1))= ln (x + Vx2+1) +  $+ \frac{\chi(1+\frac{1}{2}\frac{2\chi}{\sqrt{\chi^{2}+1}})}{\chi+\sqrt{\chi^{2}+1}} = \frac{\chi+\sqrt{\chi^{2}+1}}{\chi+\sqrt{\chi^{2}+1}} + \ln(\chi+\sqrt{\chi^{2}+1})$  $= \times \frac{\sqrt{\chi^2 + 1} + 1}{\chi^2 + 1} + \ln(\chi + \sqrt{\chi^2 + 1})$  $= \frac{\chi}{\sqrt{\sqrt{2+1}}} + \ln\left(\chi + \sqrt{\chi^2 + 1}\right)$ DERIZ  $\frac{|\lambda + \lambda|}{|\alpha \times |\alpha|} = \frac{1}{1 - (\frac{x+2}{\alpha \times +2})^2} \cdot \frac{|\alpha \times |\alpha|}{|\alpha \times |\alpha|} = \frac{1}{(\alpha \times |\alpha|)^2}$  $= \frac{-2}{(2x+2)\sqrt{(2x+2)^2 - (x+2)^2}} = \frac{-2}{(2x+2)\sqrt{3x^2 + 4x^4}} = \frac{1}{(x+1)\sqrt{3x^2 + 4x^4}}$ DER13  $\left(\ln tgx + \frac{1}{2}ctgax\right)' = \frac{1}{tgx \cdot cos^2x} - \frac{1}{sin^2x}$  $\frac{1}{3\pi x} \cos x \qquad \frac{1}{\sin^2 2x} = \frac{2}{\sin^2 2x}$ log2 Sinx-xeosx ena cosx + x sinx (-Sinx + Sinx + x cosx) ( cosx - cosx + x smx) SMX -XCOSX) COSX + Sinx (COSX + XSMX) (SMX - XCCSX) COSX & SINX - XGGS X XX SIN2X - X2 COSX SINX 

DER14 (loge (cosx+xsnx)-loge(snx-xcosx)) - ginx + snx + xcosx cosx - cosx + xsnx = -xcosx + xsnx = (cosx+xsinx) (snx-xcosx) - xsnx (cosx+xsinx) KCOSKSANX-X2COSX-XSINXCOSX-XSINX COSX SINX -X COS2X + XSINX - X8INX EOSX (1-x2) cosx smx - x cos2x (1-x2) sin2x - 2x cos 2x DER15 (x(cos(alnx)+asin(2lux))= cos(alnx) + 3sin(2hx)-- X sin (alnx) = +2x cos(alnx) = = 5 cos (alnx) DERIG (xarecos x - V1-x2) = avccos x - V1-x2 + 2 V1-x2 = = arccosx DER17 (x2 3/x2+4x+1) = 2x 1/x2+4x+1+ 3 (3/x2+4x+1)2=  $\frac{6x(x^{2}+4x+1)+x^{2}(2x+4)}{3(\sqrt[3]{x^{2}+4x+1})^{2}} = \frac{6x^{3}+24x^{2}+6x+2x^{3}+4x^{2}}{3(\sqrt[3]{x^{2}+4x+1})^{2}} =$ = 8x3+28x2+6x 3 (3/ X2+ 4x+1) 

DER (8

(aretg x + 3arctgx3)' =  $\frac{1}{1+x^4} + \frac{1}{3} \cdot \frac{3x^2}{1+x^6}$ DER 19

( $\frac{910x}{008^3x}$ ) =  $\frac{008^4x - 820x(-8.0x) \cdot 3003^2x}{008^4x} = \frac{008^2x + 3800^2x}{008^4x} = \frac{1+2820^2x}{008^4x} = \frac{2-8082x}{008^4x}$ DER 20

( $\frac{1-x^3}{4x^3}$ ) =  $-\frac{1}{\sqrt{1-\frac{(1+x^3)^2}{(1+x^3)^2}}} \cdot \frac{3x^3(1+x^3) - 3x^3(1+x^3)}{(1+x^3)^2} = \frac{3x^2 + 3x^2 + 3x^2 - 3x^5}{(1+x^3)\sqrt{1+2x^3} + x^6 - x - x^6 + 2x^3} = \frac{6x^2}{(1+x^3)\sqrt{1+2x^3}} = \frac{30x}{1+x^3}$ DER DER 18