ACTIVITY-3

Differentiate the following functions:

1. $y = \dfrac{e^u - e^{-u}}{e^u + e^{-u}}$
2. $\tan(x - y) = \dfrac{y}{1 + x^2}$
3. $y = \tan^{-1}(x - \sqrt{1 + x^2})$
4. $y = \log_2(e^{-x}\cos \pi x)$
5. $y = (\ln x)^{\cos x}$

1. $y = \dfrac{r}{\sqrt{r^2 + 1}}$
2. $e^y \cos x = 1 + \sin(xy)$
3. $G(x) = \sqrt{1 - x^2}\arccos x$
4. $y = 2x \log_{10}\sqrt{x}$
5. $y = (\tan x)^{1/x}$

The only way to learn mathematics is to do mathematics

Find first order derivative:

1. $G(y) = \dfrac{(y - 1)^4}{(y^2 + 2y)^5}$
2. $1 + x = \sin(xy^2)$
3. $g(x) = \sqrt{x^2 - 1}\sec^{-1}x$
4. $f(x) = \log_5(xe^x)$
5. $y = (\sin x)^{\ln x}$

1. $F(z) = \sqrt{\dfrac{z - 1}{z + 1}}$
2. $x^2y^2 + x \sin y = 4$
3. $y = \sin^{-1}(2x + 1)$
4. $f(x) = \log_2(1 - 3x)$
5. $y = (\cos x)^x$