Math Quiz

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RollNO-116 Tutorial-3 Date Date-15/11/21 1) coslotion = & (cosatisina) $\gamma^2 = 1 \left(\cosh 2\phi + (os 2\phi) \right)$ cos(otio) = cos O cosi p - sin O sin ip r(cos xtisin x) = cos O cosh p - isin o Sinh p r. & cost = costo cosho $\gamma^{2}\cos^{2} \lambda = \cos^{2} \phi \cosh^{2} \phi$ $\gamma^{2}\sin^{2} \lambda = \sin^{2} \theta \sinh^{2} \phi$ $\gamma^{2}=\cos^{2} \phi \cosh^{2} \phi + \sin^{2} \phi + \sin^{2} \phi \sinh^{2} \phi$ $\gamma^{2}=\cos^{2} \theta \cosh^{2} + (1-\cos^{2} \theta) (\cosh^{2} \phi - 1)$ $\gamma^{2}=\cos^{2} \theta / \cosh^{2} \phi + \cosh^{2} \phi - \cos^{2} \theta \cosh^{2} \phi$ $-1+\cos^{2} \theta$ 72= cosh20 -1+ cos20 82 1 (05 h20 -x + (05 20 +x $\gamma^2 = \frac{1}{2} \left(\cosh 2\phi + \cos 2\phi \right)$

Sout Thakare 116 , 42, Tutorial-3 15/11/21 (1ti)2/3 $\left(\sqrt{2}\left(\frac{1}{\sqrt{2}}+\frac{1}{\sqrt{2}}\right)^{2}\right)^{3}$ (V2 COSIV + is inty) 21/3 ((cost/ + isin 17/4) 2) 1/3 21/3 (cos T/2 + isin T/2) 1/3 21/3 (cos 2htt +T/2 +isin2htt+T/2 $02(\mu = 0/1/2)$ 2/3/105 4h 11+11 2'13 (cos (4n+1) 17 + isin(4n+1)11/ por(k=0) 2'3 (costt/ tisin T/6) 2"3 (COSSIT + isinsity) for (h=2) 21/3 (cos 917 + isin 977)

Smit Thekare 116, 42, Tutorial -3 15/11/21 Continued products -(21/3) 3 (cost 1/6 + i sin 1/6) (ws 51/7 + isin 51/7) (cos 37 + isin 17) 2 (cos (II+ SIT + 3TV) + isin (+ 5TV+ = 2 (cos (15th) + isin(15th) = 2/cos (51/2) + i sin (51/2) = 2 (Oti)

smit Thekare 116, 1/2, Tutorial-3 15/71/21 Q3> (1+i) 1+ (1-i) = 2 (2) 1/2 (05 nT/4 Prove that $(\sqrt{2})^{n} \left(\left(\frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} \right)^{n} + \left(\frac{1}{\sqrt{2}} - \frac{1}{\sqrt{2}} \right)^{n} \right)$ (V2) h (costy +i sinty) n + (cos (=Tyn +isin (-Tyn)) (V2) ((03 nt) + isingtifu + cosnty = (-1/2) 1 (2 cosnt/h) (2 cosnt/h) (2) n/2 . 2 cos n 1/4 =2(2) MEZ 0(0SnT/2 (1+i) 10 + (1-i) 10 = 0 (prove that) $2^{5} \cdot 2 \cdot \cos 1017 = 2^{5} \cdot 2\cos 5\pi$ = 25.0 = 0 : Menre proved.