```
(何證1)
         f(Z) = col-Z (Z = x+xi)
                     = cos (x+ ix) > 4 (x, x) + i V(x x) 0 []/2
                         > cosxcosh#
 (例置2)
                f = sin h (xtdi)
                          2 SIN i (3 - ix) = isin (2-ix)
                                                                              ( ) 海 安定軍
                                                                     · Lising cosix - costoinia)

Towns

Landa
                                                                      = ising coshx - i'cory sin hx
                                                                     = snhx cost + icoshx sin 2
(演習)
門)次の加力定理を証明せよ
 (1) cosh(z, + 2,). coshz, coshz, + sinhz, rinhZ.
 (2) sin h(Z, +Z,) . sinhz, cos hZ, + cos hz, sinhZ
問2 例距1 におりて、sin (X+18) をSin X. cos X. sinkは、could で表式を書け.
問3 何恵2 になら、て、cos h(x+ið) も coshx、sinhx、coxx、sinðで表拭を導け、
関4 何題 1.2 12なら、7、次の 被事更を Utiv の形 でませ
            (1, COS (21i)

\begin{pmatrix}
\cos x - \frac{e^{ix} + e^{-ix}}{2} & \cos hix \\
\sin x & \frac{e^{ix} - e^{-ix}}{2} & -i\sin hx
\end{pmatrix}

            (2) sinh (1+2i)
            (3) \sin\left(\frac{\pi}{4}+2\bar{\chi}\right)
           (4) wsh (2+ (5))
         sin(x+ix) = sinx cosiy + cosx sinhy 

= sin iy = <math>\frac{e^x + e^x}{2} = coshx

sin iy = \frac{e^x - e^x}{2i} = +(sinhx)
          cos h(x+ið) = cos(hx + hi y)
                                                    = coshx coshing + 5 inhx sinih 7
                                                    · coshx cosy + i sinhx siny
[3]
                                                                                                                         ei(h8,+ NZz) + e-i(hz,+h2z)
           cos ((2,+22) = cos(NZ1+ hZ2) =
                                                                                                          eihz, eihz, + e-ihz, + e-ihz,
          \frac{e^{ihz_{+}} - e^{-ihz_{+}}}{e^{ihz_{+}} + e^{-ihz_{+}}} = \frac{e^{ihz_{+}} - e^{-ihz_{+}}}{e^{ihz_{+}} + e^{-ihz_{+}}} = \frac{e^{ihz_{+}} - e^{-ihz_{+}}}{e^{ihz_{+}} - e^{-ihz_{+}}} = \frac{e^{ihz_{+}} - e^{-ihz_{+}}}{e^{ihz_{+}} - e^{-ihz_{+}}} = \frac{e^{ihz_{+}} - e^{-ihz_{+}}}{e^{ihz_{+}} - e^{-ihz_{+}}} = \frac{e^{ihz_{+}} - e^{-ihz_{+}}}{e^{-ihz_{+}} - e^{-ihz_{+}}} = \frac{e^{ihz_{+}} - e^{-ihz_{+}}}{e^{-ihz_{+}} - e^{-ihz_{+}}} = \frac{e^{ihz_{+}} - e^{-ihz_{+}}}{e^{-ihz_{+}} - e^{-ihz_{+}}} = \frac{e^{-ihz_{+}} - e^{-ihz_{+}}}{e^{-ihz_{+}} - e^{-ihz_{+}}} = \frac{e^{-ihz_{
                                                                                                      = (cos h(Z+Z)
                                                                                                   1.7 证明 thr
 (2) sinh(2+22) = SINhZ, coshZ, + coshZ, simhZ,
         (#11) = Sin h(Z, + Z2) · Sin (hz, + hz2) eilz, +kz2) = eilz, +kz2
                                                                                     einz, einz, e-inz, e-inz,
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= eihz, ezhz, - e-ihz, e-ihz,
              (52) \cdot s'_{1}h^{2}, cosh^{2} + cosh^{2}, s'_{1}h^{2} = e^{ih^{2}} \cdot e^{-ih^{2}} \cdot e^
                                                                                                      (FI)

    \text{cos} x = \text{cos} h x

    \text{sin} x = -i \text{sin} h h i x

    \text{cos} i x = \text{cos} h x

    \text{cos} i x = \text{cos} h x

    \text{sin} i x = k \text{sin} h x

                                                                         · (FI)
      MY
    (1) cos (2+i) = cos 2 cos i - sin2 sini
= cos2 cos h.l - sin2 - i sin h.l
                                                             \frac{e^2+1}{2e}\cos 2 - \frac{e^2-1}{2e}\sin 2
                                                              = \frac{C^2+1}{2c} \cos 2 + i \left(\frac{1-e^2}{2e}\right) \sin 2
                            sin h(1+2i) = sin h(i(2-i))
                                                                                                                = isin (2-i)
                                                                                                                       = i (sin2 cosi - cosz sini)
                                                                                                                       · i ( sin 2 · cosh | - cos2 · i sinh · 1)
                                                                                                                     = i\left(\frac{e^2+1}{2e}\cdot sin2 - i\left(\frac{e^2-1}{2e}\right)cos - i\right)
                                                                                                                     \frac{2}{2e}\left(\frac{e^2-1}{2e}\right)\cos 2 + i\left(\frac{e^2+1}{2e}\right)\sin 2
(3) Sin(++2i): 3in + cos2i + cos + sin2i
                                                                                    : 1/2 coszi + 1/5 sin 2i
                                                                                    ; ; (osh2+ + ; isinh2
                                                                                             = \frac{\cosh 2}{\sqrt{2}} + i \cdot \frac{\sinh 2}{\sqrt{2}}
                          \cosh\left(2+\frac{\pi}{4}i\right) = \cosh\left(-2i+\frac{\pi}{4}\right)
    (4)
                                                                                                               = coshi(2-2i)
                                                                                                               = cos( = - 2i)
                                                                                                                 . cos $ cos 2i + sin $\frac{7}{4} sin \frac{7}{4}
                                                                                                                  · 1/2 E052/2 + 1/5/2 E/n 2/2
                                                                                                                      = 1 cosh2 + 1. 1 sinh2
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