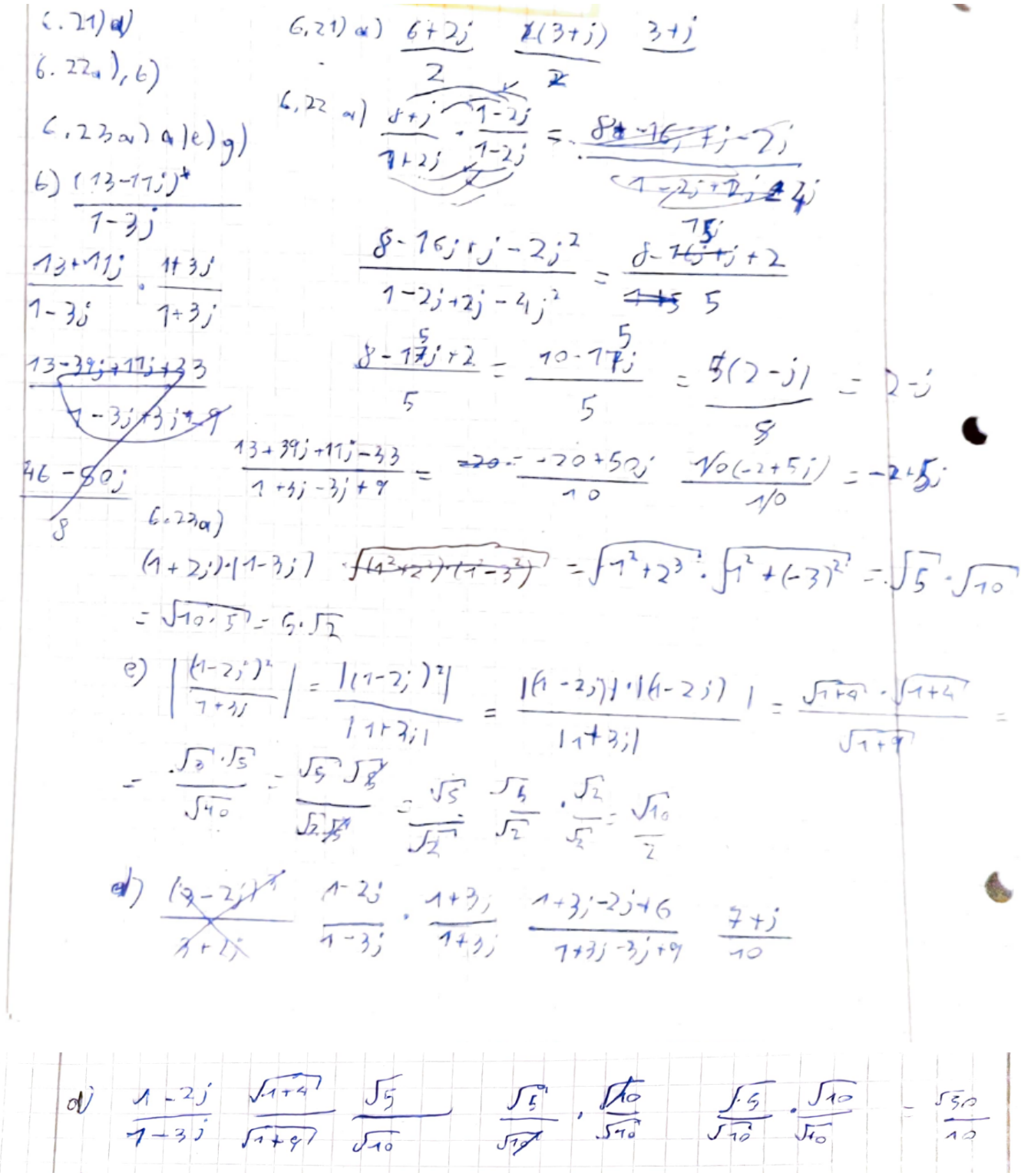
Hü 7 Stefan Fürst 2BHIT



6.23g)

$$\frac{(3-2j)^3}{3+2j} = (3-2j)*(3-2j)^2 = (3-2j)*(5-12j) = 15-36j-10j-24 = -9-46j =$$
$$\frac{(3-2j)^3}{3+2j} = \frac{(3-2j)^3}{\sqrt{3^2+2^2}} = \frac{(3-2j)^3}{\sqrt{13}} = \frac{9-46j}{\sqrt{13}} = \frac{\sqrt{9^2+46^2}}{\sqrt{13}} = \frac{\sqrt{2197}}{\sqrt{13}} = \frac{13*\sqrt{13}}{\sqrt{13}} * \frac{\sqrt{13}}{\sqrt{13}}$$
$$= \frac{13*\sqrt{13}*\sqrt{13}}{13} = \frac{169}{13} = 13$$

6.25)

checke das Beispiel nicht -1 ist erklärt -2 und -4 kann man ja ausrechen aber 3 und die anderen ungeraden verstehe ich nicht

j^-n
$n = 1$
$j^-1 = \frac{1}{j} = \frac{1}{j} * \frac{-j}{-j} = \frac{-j}{j*(-j)} \rightarrow j*j = j^2 = -1 = \frac{-j}{-(-1)} = \frac{-j}{1} | *1 = -j$
$n = 2$
$j^-2 = \frac{1}{j^2} = \frac{1}{-1} = -1$
$n = 3$
$j^-3 = \frac{1}{j^3} = \frac{1}{j^3} * \frac{-j^3}{-j^3} = -\frac{-j^3}{j^-9} = -\frac{j}{j^-3}$
$n = 4$
$j^-4 = \frac{1}{j^4} = \frac{1}{(j^2)^2} = \frac{1}{(-1)^2} = \frac{1}{1} = 1$

6.27a)

$Rez = 4$
$|z| = 5$
$z = 4+?$
$\sqrt{4^2+x^2} = 5$
$\sqrt{16+x^2} = 5|^2$
$16+x^2 = 25$
$x^2 = 9|\sqrt{}$
$x = \pm 3$
$z = 4+3j$
$z = 4-3j$

6.27d)

$Rez = -3$
$|z| = 5$
$z = -3+?$
$\sqrt{(-3)^2 + x^2} = 5$
$\sqrt{9 + x^2} = 5|^2$
$9 + x^2 = 25| - 9$
$x^2 = 16|\sqrt{}$
$x = \pm 4$
$z = -3 + 4j$
$z = -3 - 4j$

6.278)

$x^2 - 4x + 5 = 0| - 5$
$x^2 - 4x = -5| + 4$
$x^2 - 4x + 4 = -1$
$(x - 2)^2 = -1$
$x = 2 + j$
$x = 2 - j$

6.28b)

$\frac{1}{2} * x^2 - x + 2 = 0| * 2$
$x^2 - 2x + 4 = 0| - 4$
$x^2 - 2x = -4| + 1$
$x^2 - 2x + 1 = -3$
$(x - 1)^2 = -3$
$x = 1 + i * \sqrt{3}$
$x = 1 - i * \sqrt{3}$