Real Quiz # 6 Hexin Bi

1. Galileo. 1638

2. Rene Descartes. 1637

3 Isaac Newton and Gottfried Wilhelm Leibniz. Newton, Leibniz

4 $x^3+6x-7=0$

$x=u+v$

$(u+v)^3+6(u+v)-7=0$

$u^3+3u^2v+3uv^2+v^3+6(u+v)-7=0$

$u^3+v^3+(u+v)(3uv+6)-7=0$

$3uv+6=0$

$uv=-2$

$u^3+v^3=7$

$u^3v^3=-8$

$x^2+2x-8=0$

$x=\frac{-2\pm\sqrt{4+32}}{2}=2,-1$

$u=2,\ v=-1$

$x=u+v=1$ other two roots are $\frac{-1\pm\sqrt{3}i}{2}$