1. Komplexné číslo c napíšte v algebraickom tvare, znázornite v komplexnej rovine a vypočítajte absolútnu hodnotu $|c|$
   a. $c = \frac{1}{2+i}$ $[c = \frac{2}{3} - \frac{1}{3}i,\ |c| = \frac{\sqrt{5}}{5}]$
   b. $c = \frac{(2-3i)(1+2i)}{2+i}$ $[z = \frac{17}{5} - \frac{6}{5}i,\ |c| = \sqrt{13}]$
   c. $c = \left(\frac{1+i}{1-i}\right)^4$ $[c = 1 = |c|]$
2. Riešte kvadratické rovnice
   a. $3x^2 + x - 2 = 0$ $[\{-1;\ \frac{2}{3}\}]$
   b. $2x^2 - 2x + 1 = 0$ $[\frac{1}{2} \pm \frac{1}{2}i]$
   c. $2x^2 - 2x + 5 = 0$ $[\frac{1}{2} \pm \frac{3}{2}i]$
3. Riešte rovnice
   a. $(1+i)x = 2 - 3i$ $[-\frac{1}{2} - \frac{5}{2}i]$
   b. $x - 2ix + 1 - 2i = 1$ $[-\frac{4}{5} + \frac{2}{5}i]$
   c. $3x + 2ix + 1 - 3i = x + ix - 1$ $[-\frac{1}{5} + \frac{8}{5}i]$
4. Nájdite reálne čísla x, y, ktoré spĺňajú rovnice:
   a. $x(2+3i) + y(4-5i) = 6 - 2i$ $[x = y = 1]$
   b. $(x-i)(2-yi) = 11 - 23i$ $[(7,3);\ (-3/2, -14)]$
   c. $\frac{x}{2+3i} + \frac{y}{3+2i} = 1$ $[(-26/5, 39/5)]$
5. V obore komplexných čísel riešte rovnice
   a. $z^2 + 3\overline{z} = 0$ $[z_1 = 0,\ z_2 = -3,\ z_{3,4} = \frac{3}{2} \pm i\sqrt{3}\frac{3}{2},\ ]$
   b. $2z + (1+i)\overline{z} = 1 - 3i$ $[z = 2 - 5i]$
   c. $\frac{z+1}{\overline{z}-1} = -1$ $[\{iy\colon y \in \mathbb{R}\}]$
6. Určte goniometrický tvar a znázornite v komplexnej rovine čísla
   $3,\ -3,\ 3i,\ -3i,\ 1+i,\ -1-i,\ \sqrt{3}+i,\ -1+i\sqrt{3}$
   $[3 = 3(\cos 0 + i\sin 0),\ -3 = 3(\cos\pi + i\sin\pi),\ 3i = 3(\cos\frac{\pi}{2}0 + i\sin\frac{\pi}{2}),\ -3i = 3(\cos\frac{3\pi}{2}0 + i\sin\frac{3\pi}{2}),$
   $1+i = \sqrt{2}(\cos\frac{\pi}{4} + i\sin\frac{\pi}{4}),\ -1-i = \sqrt{2}(\cos\frac{5\pi}{4} + i\sin\frac{5\pi}{4}),\ \sqrt{3}+i = 2(\cos\frac{\pi}{6} + i\sin\frac{\pi}{6}),$
   $-1+i\sqrt{3} = 2(\cos\frac{2\pi}{3} + i\sin\frac{2\pi}{3})]$
7. Riešte binomické rovnice. Riešenie vyjadrite v goniometrickom aj algebraickom tvare a znázornite.
   a. $z^3 = -8i$, b. $z^3 = 8i$, c. $z^4 = -4$, d. $z^4 = -1 + i\sqrt{3}$,
   e. $z^4 = -1 - i\sqrt{3}$, f. $z^6 = -8$, g. $z^6 = 1$
   [a. $z_k = 2\big(\cos(\frac{\pi}{2} + k\frac{2\pi}{3}) + i\sin(\frac{\pi}{2} + k\frac{2\pi}{3})\big),\ k = 0,1,2;$
   b. $z_k = 2\big(\cos(\frac{\pi}{6} + k\frac{2\pi}{3}) + i\sin(\frac{\pi}{6} + k\frac{2\pi}{3})\big),\ k = 0,1,2;$
   c. $z_k = \sqrt{2}\big(\cos(\frac{\pi}{4} + k\frac{\pi}{2}) + i\sin(\frac{\pi}{4} + k\frac{\pi}{2})\big),\ k = 0,1,2,3;$
   d. $z_k = \sqrt[4]{2}\big(\cos(\frac{\pi}{6} + k\frac{\pi}{2}) + i\sin(\frac{\pi}{6} + k\frac{\pi}{2})\big),\ k = 0,1,2,3$
   e. $z_k = \sqrt[4]{2}\big(\cos(\frac{\pi}{3} + k\frac{\pi}{2}) + i\sin(\frac{\pi}{3} + k\frac{\pi}{2})\big),\ k = 0,1,2,3$
   f. $z_k = \sqrt{2}\big(\cos(\frac{\pi}{6} + k\frac{\pi}{3}) + i\sin(\frac{\pi}{6} + k\frac{\pi}{3})\big),\ k = 0,1,2,3,4,5$
   g. $z_k = \big(\cos(\frac{\pi}{3} + k\frac{\pi}{3}) + i\sin(\frac{\pi}{3} + k\frac{\pi}{3})\big),\ k = 0,1,2,3,4,5]$