A current-carrying wire is bent into two straight segments of length $L$ at right angles.

(a) Find the direction (⊙, ⊙) of the magnetic fields $B_1, \ldots, B_6$.

(b) Name the strongest and the weakest fields among them.

(c) Name all pairs of fields that have equal strength.
Two wires of infinite length contain concentric semicircular segments of radii 1m and 2m, respectively.

- If one of the wires carries a 6A current in the direction indicated, what must be the direction (↑, ↓) and magnitude of the current in the other wire such that the magnetic field at the center of the semicircles vanishes?
An electric current $I$ flows through the wire as indicated by arrows.

(a) Find the direction $(\bigcirc, \bigotimes)$ of the magnetic field generated by the current at the points $1, \ldots, 5$.
(b) At which points do we observe the strongest and weakest magnetic fields?
Consider two infinitely long straight currents $I_1$ and $I_2$ as shown.

- Find the components $B_x$ and $B_y$ of the magnetic field at the origin of the coordinate system.

![Diagram showing two currents $I_1 = 2A$ and $I_2 = 4A$ at a distance of 3m and 4m respectively]
Two straight electric currents $I_1$ and $I_2$ of infinite length directed perpendicular to the $xy$-plane generate a magnetic field of magnitude $B = 6.4 \times 10^{-7}$ T in the direction shown.

- Find the magnitude and direction ($\bigcirc$, $\bigotimes$) of each current.
Three squares with equal clockwise currents are placed in the magnetic field of a straight wire with a current flowing to the right.

- Find the direction (↑, ↓, zero) of the magnetic force acting on each square.