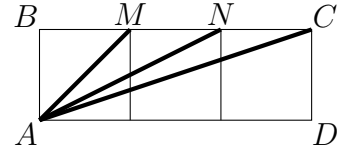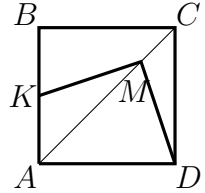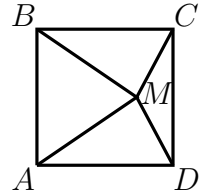# "DIFFICULT–EASY PROBLEMS" FROM GEOMETRY

Part 1

Problem 1. Suppose $ABCD$ is a rectangle where $AB = BM = MN = NC$. What is the value of $\angle MAD + \angle NAD + \angle CAD$?
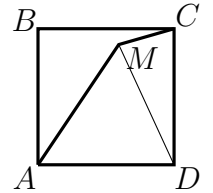
Problem 2. Suppose $ABCD$ is a square, point K is midpoint of side AB while M lies on diagonal AC, so that $AM : MC = 3 : 1$. Determine the value of $\angle KMD$.
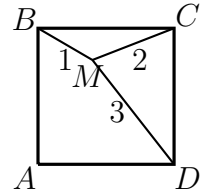
Problem 3. A point M is chosen inside a square $ABCD$ so that $\angle MAB = 60°$, while $\angle MCD = 15°$. Determine the value of $\angle MBC$.
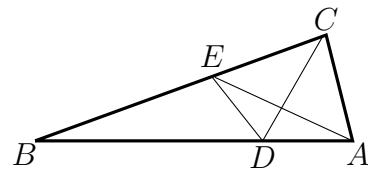
Problem 4. A point M is chosen inside a square $ABCD$ so that $\angle MAB = 30°$, while $\angle MCB = 15°$. Determine the value of $\angle MDA$.

Problem 5. A point M is chosen inside a square $ABCD$ so that $BM : CM : DM = 1 : 2 : 3$. Determine the value of $\angle BMC$.

Problem 6. ABC is isosceles triangle with $\angle A = \angle C = 80°$. Points D and E are marked on sides AB and BC respectively so that $\angle ADC = 60°$ and $\angle AEC = 50°$. Determine the value of $\angle DEA$.

Problem 7. Triangle ABC is isosceles $(AB = BC)$ and $\angle ABC = 80°$. Point P is marked in interior of ABC so that $\angle ACP = 30°$ while $\angle PAC = 40°$. What is the value of $\angle BPC$?
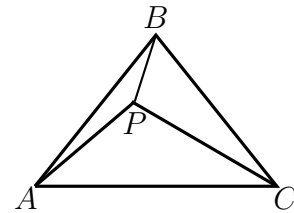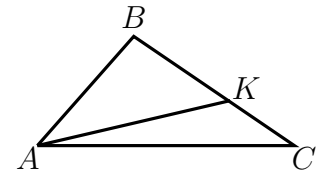
Problem 8. Triangle ABC is isosceles ($AB = BC$) and $\angle ABC = 80°$. Point P is marked in interior of ABC so that $\angle PAC = 30°$ while $\angle PCA = 10°$. What is the value of $\angle BPC$?
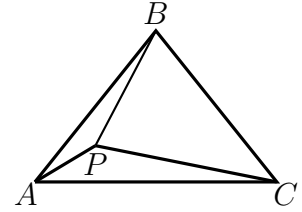
Problem 9. Suppose that in triangle ABC, AH is an altitude, BE is bisector and $\angle AHE = 45°$. What is the value of $\angle EHC$?
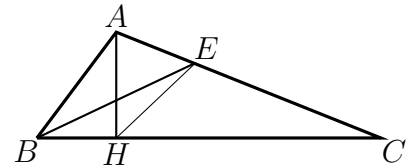
Problem 10. Point K is marked on side BC of triangle ABC so that $BK = 2KC$. Given that $\angle ACB = 45°$, $\angle AKB = 60°$. Determine the value of $\angle ABC$.

Problem 11. Suppose that in triangle ABC, AA', BB', and CC' are bisectors and $\angle ABC = 120°$.

   (a) Determine the value of $\angle C'B'A'$;

   (b) Determine the value of $\angle B'C'C$.