SOLUTIONS TO ADDITIONAL EXERCISES FOR III.1 AND III.2

Here are the solutions to the exercises at the end of the file `polyangles.pdf`.

P1. Since the sum of the measures of all three face angles is at most $360°$ and the sum of two of the measures is $320°$, it follows that the measure of the third is at most $40°$.■

P2. Let Q be the plane which is the perpendicular bisector of $[BC]$, so that a point is on Q if and only if it is equidistant from B and C. It will suffice to prove that V, A, M are all equidistant from B and C; note that the three points in question cannot be collinear, for if they were then A would lie in the plane containing V, B, C.

We are given that V and M are equidistant from B and C, so we need only show that the same is true for A. Since $d(V, A) = d(V, A)$, $|\angle AVC| = |\angle AVB|$, and $d(V, B) = d(V, C)$, by **SAS** we have $\Delta AVB \cong \Delta AVC$, and this implies the desired equality $d(A, B) = d(A, C)$.■