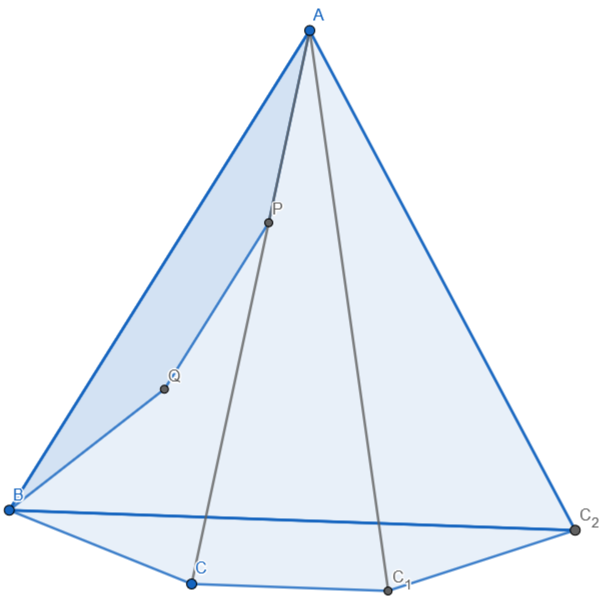
4 Geometry Solution



First, since $APQB$ is an isosceles trapezoid, we have that $\angle ABQ = \angle BAP = 20^\circ$.

Rotate the original triangle $\triangle ABC$ by 20° about point A, to get triangle $\triangle ACC_1$. Then, rotate that triangle 20° about point A to get triangle $\triangle AC_1C_2$. We have $BC = CC_1 = C_1C_2$.

Then, since $\angle BAC = \angle CAC_1 = \angle C_1AC_2 = 20^\circ$, we know $\angle BAC_2 = 60^\circ$. Since $AB = AC_2$, we have that $\triangle ABC_2$ is equilateral. Furthermore, since $\angle ABC = \angle AC_2C_1 = 80^\circ$, we have that $\angle C_2BC = \angle BC_2C_1 = 20^\circ = \angle BAP$.

Therefore, trapezoids $APQB$ and C_2C_1CB are similar, so $AP = PQ = QB = BC = 2025$.