I5. Use a parallelogram coordinate system in which the coordinates of B are $(0,0)$, $P(0,3)$, and $C(1,0)$. The coordinates of the centroid G of $\triangle ABC$ are the averages of the corresponding coordinates of A, B, and C, so $G(1/3, 4/3)$. Then an equation of line PG is $y = -5x + 3$. When $y = 0$, $x = 3/5$, so the requested ratio is $3/2$.

Alternate solution: Use Mass Points. Let G be the centroid of $\triangle ABC$, let M be the midpoint of $\overline{BC}$, and let Q be the point where line PG intersects $\overline{BC}$. Draw a diagram that omits $\overline{AC}$ and $\overline{QC}$, and note that $AG/GM = 2/1$. Assign a mass of 1 to B. Then the masses at A and M must be 3 and 6, respectively, and so the mass at Q is 5. Thus $BM/MQ = 5$, so $BM = 5MQ$. Then $BQ = 6MQ$ and $BC = 2BM = 10MQ$. Hence $BQ/BC = 3/5$, and so $BQ/QC = 2/5$.