



$$\vec{OP} = \vec{OA} + \frac{2}{5}\vec{AB} = \frac{3}{5}\vec{OA} + \frac{2}{5}\vec{OB}, \quad \vec{OQ} = \vec{OB} + \frac{2}{5}\vec{BC} = \frac{3}{5}\vec{OB} + \frac{2}{5}\vec{OC}, \quad \vec{OR} = \vec{OA} + \frac{2}{5}\vec{AC} = \frac{2}{5}\vec{OA} + \frac{3}{5}\vec{OC}$$

$$|\vec{OP}| = |\vec{OQ}| = |\vec{OR}| \neq 1, \quad \left| \frac{3}{5}\vec{OA} + \frac{2}{5}\vec{OB} \right| = \left| \frac{3}{5}\vec{OB} + \frac{2}{5}\vec{OC} \right| = \left| \frac{2}{5}\vec{OA} + \frac{3}{5}\vec{OC} \right|$$

$$|\vec{OA}| = |\vec{OB}| = |\vec{OC}| \neq 1, \quad \frac{9}{25}|\vec{OA}|^2 + \frac{12}{25}\vec{OA} \cdot \vec{OB} + \frac{4}{25}|\vec{OB}|^2 = \frac{9}{25}|\vec{OB}|^2 + \frac{12}{25}\vec{OB} \cdot \vec{OC} + \frac{4}{25}|\vec{OC}|^2 = \frac{4}{25}|\vec{OA}|^2 + \frac{12}{25}\vec{OA} \cdot \vec{OC} + \frac{9}{25}|\vec{OC}|^2$$

$$|\vec{OA}| |\vec{OB}| \cos \angle AOB = |\vec{OB}| |\vec{OC}| \cos \angle BOC = |\vec{OA}| |\vec{OC}| \cos \angle AOC$$

$$\angle AOB = \angle BOC = \angle AOC < \pi \neq 1 \implies \angle AOB = \angle BOC = \angle AOC$$

左図より、正三角形

