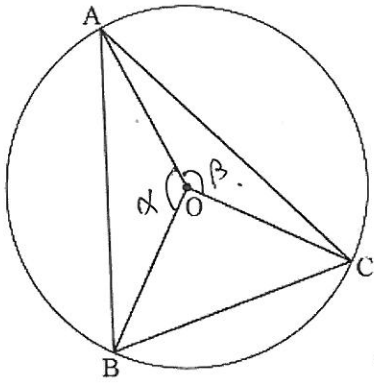


* 2020년 3월 (4월시험) 교육청 모의고사 기34학 가형 19번.



$$r = \overline{AO} = \sqrt{10} = \overline{BO} = \overline{CO}.$$

$$\overline{BC} = 2\sqrt{5}, \quad \therefore \angle BOC = \frac{\pi}{2},$$

$$\angle AOB = \alpha, \quad \angle AOC = \beta \text{ 라 하면 } \alpha + \beta = \frac{3}{2}\pi.$$

$$\Delta OAB = \frac{1}{2} \times \sqrt{10} \times \sqrt{10} \times \sin \alpha = S_1.$$

$$\Delta OCA = \frac{1}{2} \times \sqrt{10} \times \sqrt{10} \times \sin \beta = S_2.$$

$$3S_1 = \frac{3}{2} \times 10 \times \sin \alpha = 4S_2 = \frac{4}{2} \times 10 \times \sin \beta. \quad \therefore \sin \alpha = \frac{4}{3} \sin \beta.$$

$$= \sin\left(\frac{3}{2}\pi - \beta\right) = -\cos \beta.$$

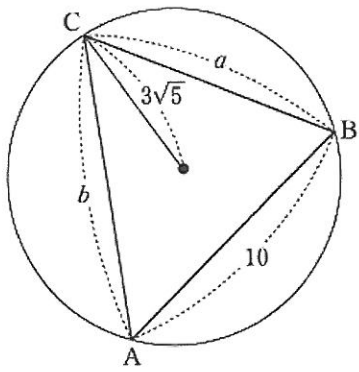
$$\therefore \sin \beta = \frac{3}{4} \sin \alpha, \quad \cos \beta = -\sin \alpha.$$

$$\sin^2 \beta + \cos^2 \beta = \frac{9}{16} \sin^2 \alpha = 1. \quad \therefore \sin \alpha = \frac{4}{5}, \quad \therefore \sin \beta = \frac{3}{5}, \quad \cos \alpha = \cos\left(\frac{3}{2}\pi - \beta\right) = -\sin \beta.$$

$$\therefore \Delta OAB \text{ 에서 제2코사인 법칙을 적용하면 } \overline{AB}^2 = 10 + 10 - 2 \cdot \sqrt{10} \cdot \sqrt{10} \cdot \left(-\frac{3}{5}\right) = 32.$$

$$\therefore \overline{AB} = \sqrt{32} = 4\sqrt{2} //$$

* 2020년 3월 (4월 시험) 교육청 모의고사 고3 수학 나형 19번.



제2코사인 법칙에 의해 $a^2 + b^2 - 2ab \cos C = 100$.

$$\therefore \frac{a^2 + b^2 - ab \cos C}{ab} = \frac{100 + ab \cos C}{ab} = \frac{100}{ab} + \cos C = \frac{4}{3}$$

$$\frac{10}{\sin C} = 2R = 6\sqrt{5} \text{ 에서 } \sin C = \frac{10}{6\sqrt{5}} = \frac{10\sqrt{5}}{30} = \frac{\sqrt{5}}{3}$$

$\therefore \cos C = \frac{2}{3}$ (\because 삼각형 ABC는 예각삼각형)

$$\therefore \frac{100}{ab} = \frac{4}{3} - \frac{2}{3} = \frac{2}{3}$$

$$\therefore ab = 150 //$$