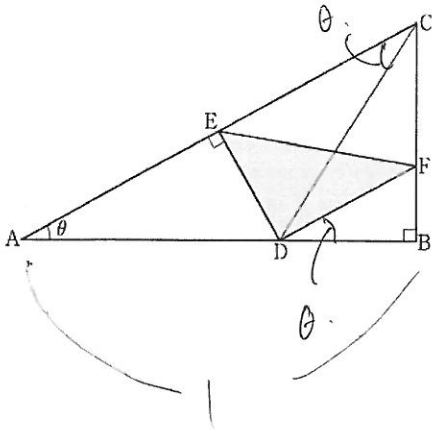


* 2019년 4월 교육청 고3 수학 기형 19번.



$$\angle CAB = \angle FDB \text{ (동위각)} = \angle ACD \text{ (이등변)} = \theta.$$

$$\overline{AB} = 1, \overline{BC} = \tan \theta, \overline{AC} = \frac{1}{\cos \theta}, \overline{AE} = \overline{EC} = \frac{1}{2 \cos \theta}.$$

$$\therefore \overline{ED} = \overline{AE} \times \tan \theta = \frac{\sin \theta}{2 \cos^2 \theta}$$

$$\overline{AD} = \overline{EC} \times \frac{1}{\cos \theta} = \frac{1}{2 \cos^2 \theta}, \quad \overline{DB} = 1 - \overline{AD} = 1 - \frac{1}{2 \cos^2 \theta}.$$

$$\therefore \overline{DF} = \overline{DB} \times \frac{1}{\cos \theta} = \frac{1}{\cos \theta} \times \left(1 - \frac{1}{2 \cos^2 \theta}\right)$$

$$\rightarrow \Delta EDF = \frac{1}{2} \times \overline{ED} \times \overline{DF} \quad (\because \angle EDF = \frac{\pi}{2} \rightarrow \text{why?})$$

$$\therefore \lim_{\theta \rightarrow 0^+} \frac{S(\theta)}{\theta} = \lim_{\theta \rightarrow 0^+} \frac{\frac{1}{2} \times \frac{\sin \theta}{2 \cos^2 \theta} \times \frac{1}{\cos \theta} \times \left(1 - \frac{1}{2 \cos^2 \theta}\right)}{\theta} = \frac{1}{2} \times \frac{1}{2} \times \frac{1}{1} \times \left(1 - \frac{1}{2}\right) = \frac{1}{8} //$$

* ΔEDF 의 넓이를 구하려면 \overline{ED} , \overline{DF} 를 찾아야 하므로 주어진 정보를 이용해서

\overline{ED} 와 \overline{DF} 의 길이를 정리하는 것이 순서이다.