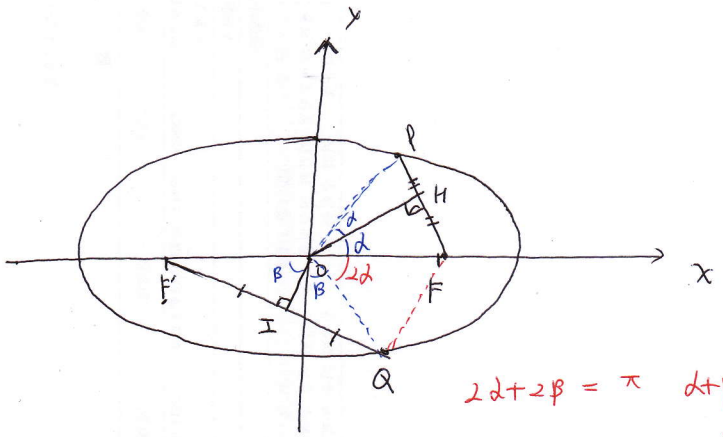
27



$2\alpha+2\beta=\pi \quad \alpha+\beta=\frac{\pi}{2}$

$\beta=\frac{\pi}{2}-\alpha$

$\overline{OH}=5\times\cos\alpha \quad \overline{OI}=5\times\cos\beta$

$=5\sin\alpha$

$\overline{OH}\times\overline{OI}=25\sin\alpha\cos\alpha \Rightarrow \sin 2\alpha=\frac{4}{5}$

$\cos 2\alpha=\frac{3}{5}$

$\cos 2\beta=\cos(\pi-2\alpha)=-\cos 2\alpha=-\frac{3}{5}$

$\therefore \overline{FQ}^2=25+25-50\cos 2\beta=80$

$\Rightarrow \overline{FQ}=4\sqrt{5}$

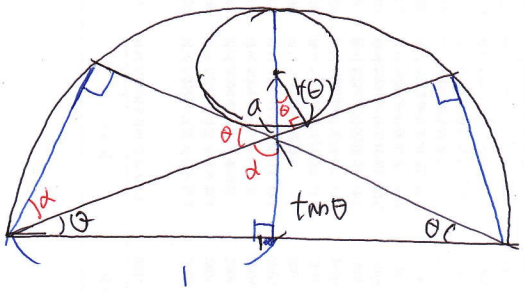
$\overline{PF}^2=25+25-50\cos 2\alpha=20$

$\overline{PF}=2\sqrt{5}$

$\therefore$ 직추의 길이 $6\sqrt{5}$

$\therefore \lambda^2=180$ //

29.



⑦ $\lim_{\theta \to \frac{\pi}{4}-0} \frac{r(\theta)}{\frac{\pi}{4}-\theta}$

$a \times \cos\theta = r(\theta) \qquad a = \frac{r(\theta)}{\cos\theta}$

$\therefore \quad 1 = \frac{r(\theta)}{\cos\theta} + \tan\theta + r(\theta)$

$\left(\frac{\cos\theta+1}{\cos\theta}\right)(r\theta) = 1 - \tan\theta$

$r(\theta) = \frac{\{1-\tan\theta\}\cos\theta}{\cos\theta+1}$

$\lim_{\theta \to \frac{\pi}{4}-0} \frac{1-\tan\theta}{\frac{\pi}{4}-\theta} \times \frac{\cos\theta}{\cos\theta+1}$

$\rightarrow \lim_{\theta \to \frac{\pi}{4}-} \frac{\tan\theta-1}{\theta-\frac{\pi}{4}} \times \lim_{\theta \to \frac{\pi}{4}-} \frac{\cos\theta}{\cos\theta+1}$

$\sec^2\frac{\pi}{4} \times \frac{\frac{1}{\sqrt{2}}}{\frac{1}{\sqrt{2}}+1} = \frac{\frac{\sqrt{2}}{2}}{\frac{2+\sqrt{2}}{2}}$

$= 2 \times \frac{\sqrt{2}}{2+\sqrt{2}}$

$= 2 \times \frac{\sqrt{2}(2-\sqrt{2})}{2} = 2\sqrt{2}-2$

$p=2 \quad q=-2$

$= \_\_\_\_$

$p^2+q^2 = 8$ //