## 信号分析与处理 HW-4. 自动化门里 190410102 方尧

3-33 il 
$$f_{3}(t) = cos(w_{0}t)$$
  
 $f_{2}(t) = f_{1}(t - \frac{\pi}{2}) \cdot f_{3}(t)$   
 $f_{2}(w) = \frac{1}{2\pi} F(f_{1}(t - \frac{\pi}{2})) *F_{3}(t)$   
 $= \frac{1}{2\pi} e^{jw\frac{\pi}{2}} F_{1}(w) * [\pi S(w_{0} - w_{0}) + \pi S(w_{0} + w_{0})]$   
 $= \frac{1}{2\pi} [e^{-jw\frac{\pi}{2}} \cdot \frac{\pi}{2} Sa^{2}(\frac{w\tau}{4})] * [\pi S(w_{0} - w_{0}) + \pi S(w_{0} + w_{0})]$   
 $= \frac{\pi}{4} e^{-jw\frac{\pi}{2}} \left\{ Sa^{2}[\frac{(w_{0} - w_{0})\tau}{4}] e^{jw_{0}\frac{\pi}{2}} + Sa^{2}[\frac{(w_{0} + w_{0})\tau}{4}] e^{-jw_{0}\frac{\pi}{2}} \right\}$ 

3-34  $f[f(t)\cos(w_t)] = \frac{1}{2\pi}F(w) \times [\pi \delta(w-w_0) + \pi \delta(w+w_0)] = \frac{1}{2}[F(w-w_0) + F(w+w_0)]$ 

F[fct)coswit] = \frac{1}{2}[f(w-wi) + F(w+wi)]





