KF

# Math 301 (072)
## Quiz 2 (12.1-12.4)

Name: ID #: Section #: Serial #:

Expand the given function in an appropriate cosine or sine series

$$f(x)=\begin{cases}1 & -\pi<x<-\pi/2\\ -x & -\pi/2<x<0\\ x & 0<x<\pi/2\\ 1 & \pi/2<x<\pi\end{cases}.$$

Find the value of the series at $x=6$.

Fourier Coefficients: $\left\{\dfrac{(f,\phi_n)}{(\phi_n,\phi_n)}\right\}$.

$$\int_{-p}^{p}\cos^2\frac{n\pi}{p}x\,dx=\int_{-p}^{p}\sin^2\frac{n\pi}{p}x\,dx=p\,.$$

$$\int x\cos ax\,dx=\frac{ax\sin ax+\cos ax}{a^2}$$

$$\int x\sin ax\,dx=\frac{\sin ax-ax\cos ax}{a^2}$$