$$y[n] = x[n] - \frac{1}{3}(x[n])^3 + \frac{1}{5}(x[n])^5 \quad \text{, when } x[n] = \sin(\theta)$$

$$= \sin\theta - \frac{1}{3}(\sin\theta)^3 + \frac{1}{5}(\sin\theta)$$

$$= \sin\theta - \frac{1}{3}\left(\frac{3\sin\theta - \sin 3\theta}{4}\right) + \frac{1}{5}\left(\frac{10}{16}\sin\theta - \frac{5}{16}\sin 3\theta + \frac{1}{16}\sin 5\theta\right)$$

$$= \sin\theta - \frac{3\sin\theta}{4 \cancel{12}} + \frac{\sin 3\theta}{12} + \frac{10}{80}\sin\theta - \frac{5}{80}\sin 3\theta + \frac{1}{80}\sin 5\theta$$

$$= \frac{8}{8}\sin\theta - \frac{2}{8}\sin\theta + \frac{1}{8}\sin\theta + \underset{\text{C } \frac{4}{48}}{\frac{1}{12}}\sin 3\theta - \underset{\text{C } \frac{3}{48}}{\frac{1}{16}}\sin 3\theta + \frac{1}{80}\sin 5\theta$$

$$= \frac{7}{8}\sin\theta + \frac{1}{48}\sin 3\theta + \frac{1}{80}\sin 5\theta$$

$$= \boxed{\frac{7\sin\theta}{8} + \frac{\sin 3\theta}{48} + \frac{\sin 5\theta}{80}}$$