

Homework 20.

- 3.1
- 3.6 $\sin(2x + \pi/3)$
- 4.3 Average is 0, because average of $\sin(2n\pi)$ is 0.
- 4.4 Average is $1/e$.
- 4.13 Both integrals have the same value, and their sum is the integral of 1, which is $b - a$. So each integral has value $(b - a)/2$.
- 4.14 (a) $2\pi/3$ (b) π .
- 5.1 $1/2 - (2/\pi)(\sin(x)/1 + \sin(3x)/3 + \sin(5x)/5 + \dots)$.
- 5.4 $-1/2 - (2/\pi)(\cos(x)/1 - \cos(3x)/3 + \cos(5x)/5 + \dots) + (2/\pi)(\sin(x)/1 - 2\sin(2x)/2 + \sin(3x)/3 + \sin(5x)/5 - 2\sin(6x)/6 + \dots)$.
- 5.7 $\pi/4 - (2/\pi)(\cos(x)/1^2 + \cos(3x)/3^2 + \cos(5x)/5^2 + \dots) + (\sin(x)/1 - \sin(2x)/2 + \sin(3x)/3 + \dots)$
- 5.9 $\pi/4 + (2/\pi)(\cos(x)/1^2 + \cos(3x)/3^2 + \cos(5x)/5^2 + \dots) - (\sin(x)/1 + \sin(2x)/2 + \sin(3x)/3 + \dots)$
- 5.11 $1/\pi + \sin(x)/2 - (2/\pi)(\cos(2x)/(2^2 - 1) + \cos(4x)/(4^2 - 1) + \cos(6x)/(6^2 - 1))$
- 6.4 -1 at -2π , 0 at $-\pi$, -1 at $-\pi/2$, -1 at 0 , 0 at $\pi/2$, 0 at π , -1 at 2π .