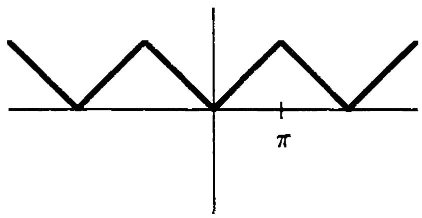
TABLE 1. FOURIER SERIES

The functions f in this table are all understood to be 2π-periodic. The formula for $f(\theta)$ on either $(-\pi, \pi)$ or $(0, 2\pi)$ (except perhaps at its points of discontinuity) is given in the left column; the Fourier series of f is given in the right column; and the graph of f is sketched on the facing page.

1.	$f(\theta) = \theta \quad (-\pi < \theta < \pi)$	$2\sum_1^\infty \frac{(-1)^{n+1}}{n} \sin n\theta$
2.	$f(\theta) = \lvert\theta\rvert \quad (-\pi < \theta < \pi)$	$\frac{\pi}{2} - \frac{4}{\pi}\sum_1^\infty \frac{\cos(2n-1)\theta}{(2n-1)^2}$
3.	$f(\theta) = \pi - \theta \quad (0 < \theta < 2\pi)$	$2\sum_1^\infty \frac{\sin n\theta}{n}$
4.	$f(\theta) = \begin{cases} 0 & (-\pi < \theta < 0) \\ \theta & (0 < \theta < \pi) \end{cases}$	$\frac{\pi}{4} - \frac{2}{\pi}\sum_1^\infty \frac{\cos(2n-1)\theta}{(2n-1)^2} + \sum_1^\infty \frac{(-1)^{(n+1)}}{n} \sin n\theta$
5.	$f(\theta) = \sin^2\theta$	$\frac{1}{2} - \frac{1}{2}\cos 2\theta$
6.	$f(\theta) = \begin{cases} -1 & (-\pi < \theta < 0) \\ 1 & (0 < \theta < \pi) \end{cases}$	$\frac{4}{\pi}\sum_1^\infty \frac{\sin(2n-1)\theta}{2n-1}$
7.	$f(\theta) = \begin{cases} 0 & (-\pi < \theta < 0) \\ 1 & (0 < \theta < \pi) \end{cases}$	$\frac{1}{2} + \frac{2}{\pi}\sum_1^\infty \frac{\sin(2n-1)\theta}{2n-1}$
8.	$f(\theta) = \lvert\sin\theta\rvert$	$\frac{2}{\pi} - \frac{4}{\pi}\sum_1^\infty \frac{\cos 2n\theta}{4n^2-1}$
9.	$f(\theta) = \lvert\cos\theta\rvert$	$\frac{2}{\pi} - \frac{4}{\pi}\sum_1^\infty \frac{(-1)^n \cos 2n\theta}{4n^2-1}$
10.	$f(\theta) = \begin{cases} 0 & (-\pi < \theta < 0) \\ \sin\theta & (0 < \theta < \pi) \end{cases}$	$\frac{1}{\pi} - \frac{2}{\pi}\sum_1^\infty \frac{\cos 2n\theta}{4n^2-1} + \frac{1}{2}\sin\theta$



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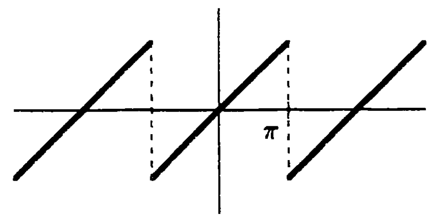

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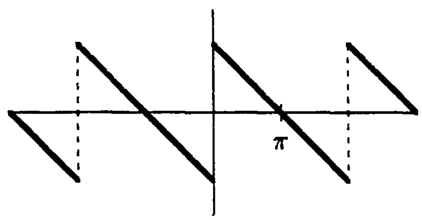

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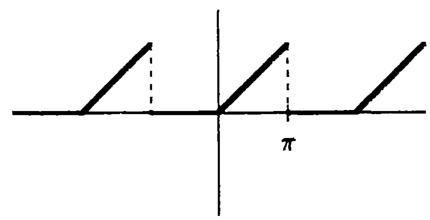

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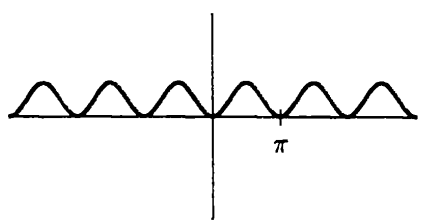

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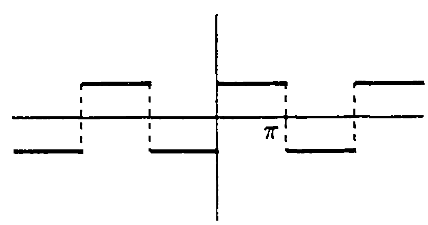

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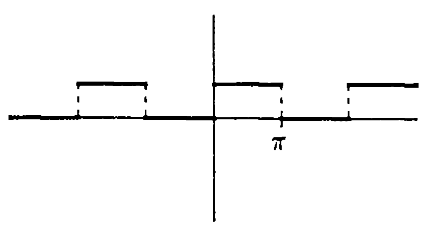

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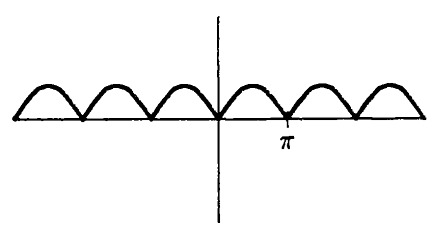

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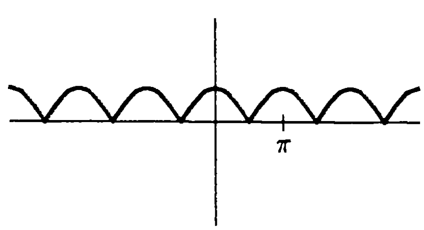

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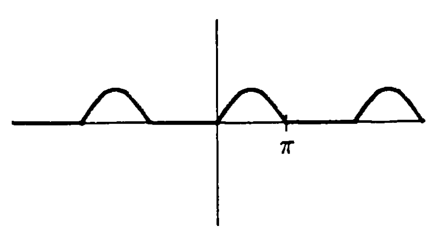

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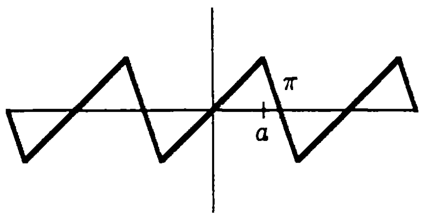
TABLE 1 (continued)

11.	$f(\theta)=\begin{cases}\theta & (-a<\theta<a)\\ a\frac{\pi-\theta}{\pi-a} & (a<\theta<\pi)\\ a\frac{\pi+\theta}{a-\pi} & (-\pi<\theta<-a)\end{cases}$	$\frac{2}{\pi-a}\sum_1^\infty \frac{\sin na}{n^2}\sin n\theta$
12.	$f(\theta)=\begin{cases}(2a)^{-1} & (\lvert\theta\rvert<a)\\ 0 & (a<\lvert\theta\rvert<\pi)\end{cases}$	$\frac{1}{2\pi}+\frac{1}{\pi}\sum_1^\infty \frac{\sin na}{na}\cos n\theta$
13.	$f(\theta)=\begin{cases}(2a)^{-1} & (\lvert\theta-\theta_0\rvert<a)\\ 0 & (a<\lvert\theta-\theta_0\rvert<\pi)\end{cases}$	$\frac{1}{2\pi}+\frac{1}{\pi}\sum_1^\infty \frac{\sin na}{na}(\cos n\theta_0\cos n\theta$ $+\sin n\theta_0 \sin n\theta)$
14.	$f(\theta)=\begin{cases}1 & (-a<\theta<a)\\ -1 & (2a<\theta<4a)\\ 0 & \text{elsewhere in } (-\pi,\pi)\end{cases}$	$\sum_1^\infty \frac{\sin na}{n}\Big[(1-\cos 3na)\cos n\theta$ $-\sin 3na \sin n\theta\Big]$
15.	$f(\theta)=\begin{cases}a^{-2}(a-\lvert\theta\rvert) & (\lvert\theta\rvert<a)\\ 0 & (a<\lvert\theta\rvert<\pi)\end{cases}$	$\frac{1}{2\pi}+\frac{2}{\pi}\sum_1^\infty \frac{1-\cos na}{n^2a^2}\cos n\theta$
16.	$f(\theta)=\theta^2 \quad (-\pi<\theta<\pi)$	$\frac{\pi^2}{3}+4\sum_1^\infty \frac{(-1)^n}{n^2}\cos n\theta$
17.	$f(\theta)=\theta(\pi-\lvert\theta\rvert) \quad (-\pi<\theta<\pi)$	$\frac{8}{\pi}\sum_1^\infty \frac{\sin(2n-1)\theta}{(2n-1)^3}$
18.	$f(\theta)=e^{b\theta} \quad (-\pi<\theta<\pi)$	$\frac{\sinh b\pi}{\pi}\sum_{-\infty}^\infty \frac{(-1)^n}{b-in}e^{in\theta}$
19.	$f(\theta)=e^{b\theta} \quad (0<\theta<2\pi)$	$\frac{e^{2\pi b}-1}{2\pi}\sum_{-\infty}^\infty \frac{e^{in\theta}}{b-in}$
20.	$f(\theta)=\sinh\theta \quad (-\pi<\theta<\pi)$	$\frac{2\sinh\pi}{\pi}\sum_1^\infty \frac{(-1)^{n+1}n}{n^2+1}\sin n\theta$



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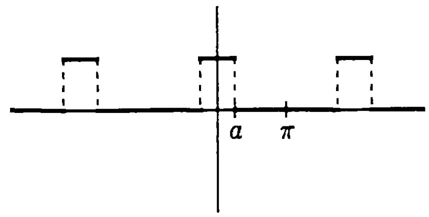

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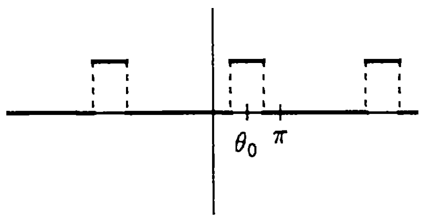

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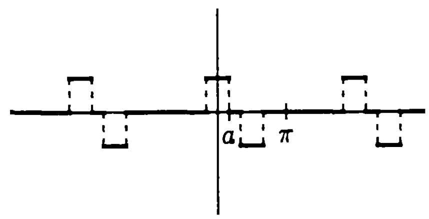

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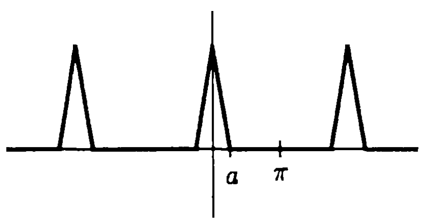

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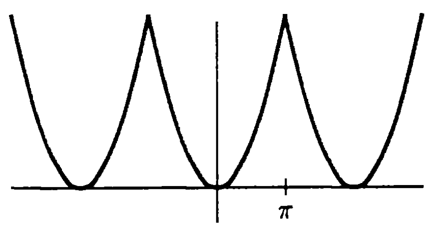

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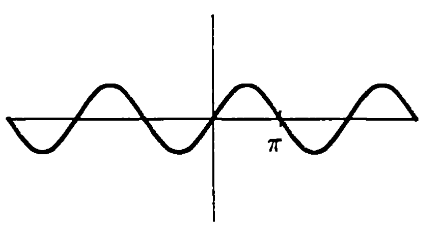

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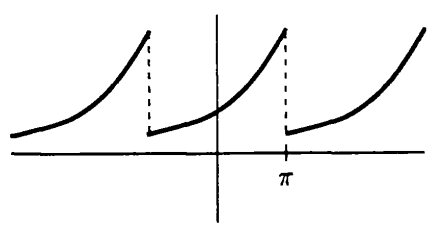

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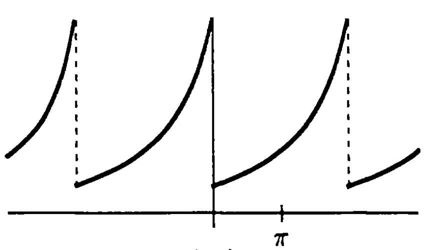

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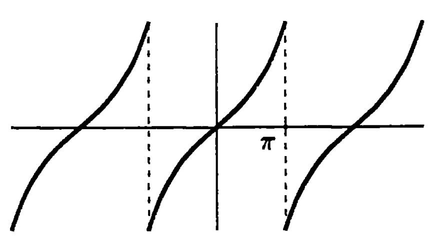

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