

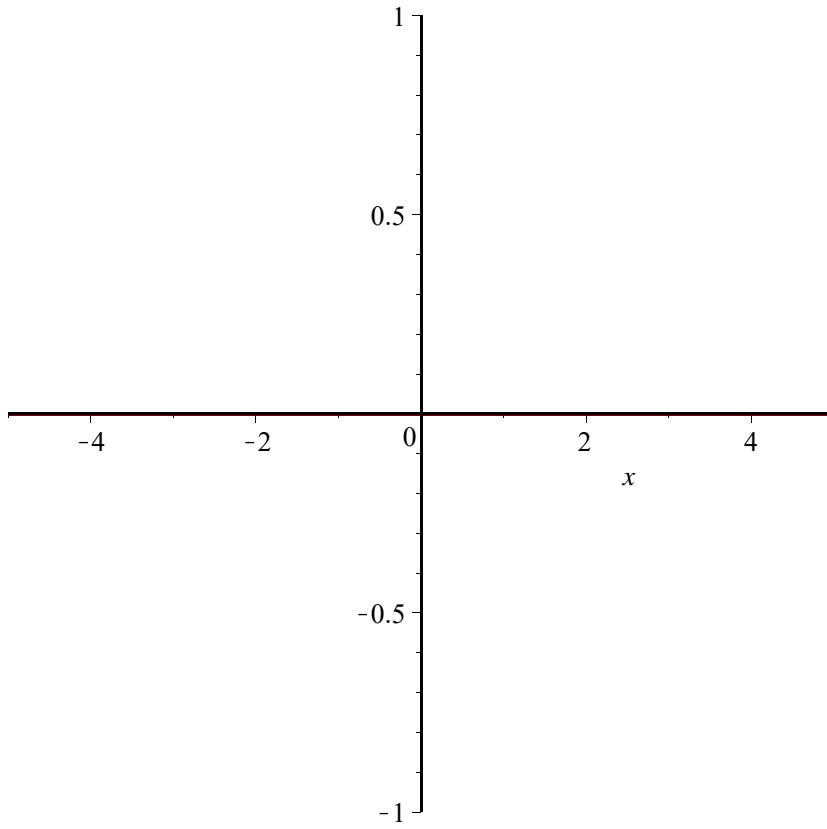
> restart; $G(s) := \left(\cos\left(\frac{\text{Pi}}{2} \cdot s\right) \right)^2$; $ui := \text{piecewise}\left(-1 < x - t < 1 \text{ and } -1 < x + t < 1, \right.$
 $-\frac{1}{2} \text{int}(G(s), s=x-t..x+t), -1 < x - t < 1 \text{ and } x + t > 1, -\frac{1}{2} \text{int}(G(s), s=x-t..1), x$
 $-t < -1 \text{ and } -1 < x + t < 1, -\frac{1}{2} \text{int}(G(s), s=-1..x+t), x - t < -1 \text{ and } x + t > 1,$
 $\left. -\frac{1}{2} \text{int}(G(s), s=-1..1), 0 \right)$

$$G := s \rightarrow \cos\left(\frac{1}{2} \pi s\right)^2$$

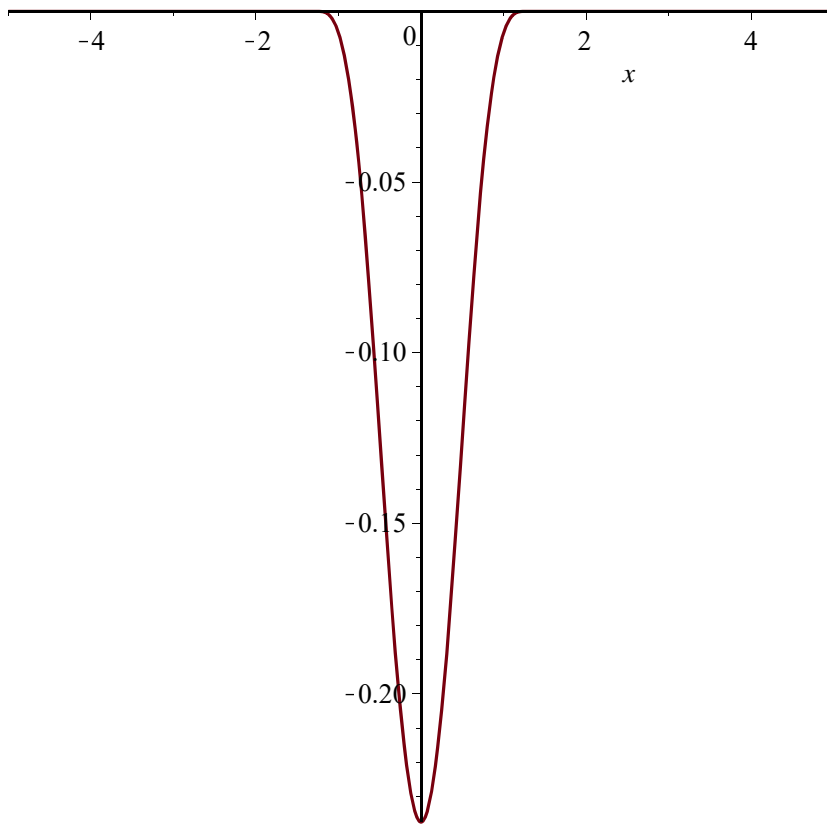
$$ui := \begin{cases} -\frac{1}{2} \frac{\pi t + \cos\left(\frac{1}{2} \pi (-x+t)\right) \sin\left(\frac{1}{2} \pi (-x+t)\right) + \cos\left(\frac{1}{2} \pi (x+t)\right) \sin\left(\frac{1}{2} \pi (x+t)\right)}{\pi} & -1 < x - t < 1 \text{ and } -1 < x + t < 1 \\ -\frac{1}{4} \frac{\pi t - \pi x + 2 \cos\left(\frac{1}{2} \pi (-x+t)\right) \sin\left(\frac{1}{2} \pi (-x+t)\right) + \pi}{\pi} & -1 < x - t < 1 \text{ and } x + t > 1 \\ -\frac{1}{4} \frac{\pi t + \pi x + 2 \cos\left(\frac{1}{2} \pi (x+t)\right) \sin\left(\frac{1}{2} \pi (x+t)\right) + \pi}{\pi} & x - t < -1 \text{ and } -1 < x + t < 1 \\ -\frac{1}{2} & x - t < -1 \text{ and } x + t > 1 \\ 0 & \text{otherwise} \end{cases}$$

> for i from 0 to 5 by 0.25 do $u1 := \text{subs}(t=i, ui) : \text{plot}(u1, x=-5..5)$ end do

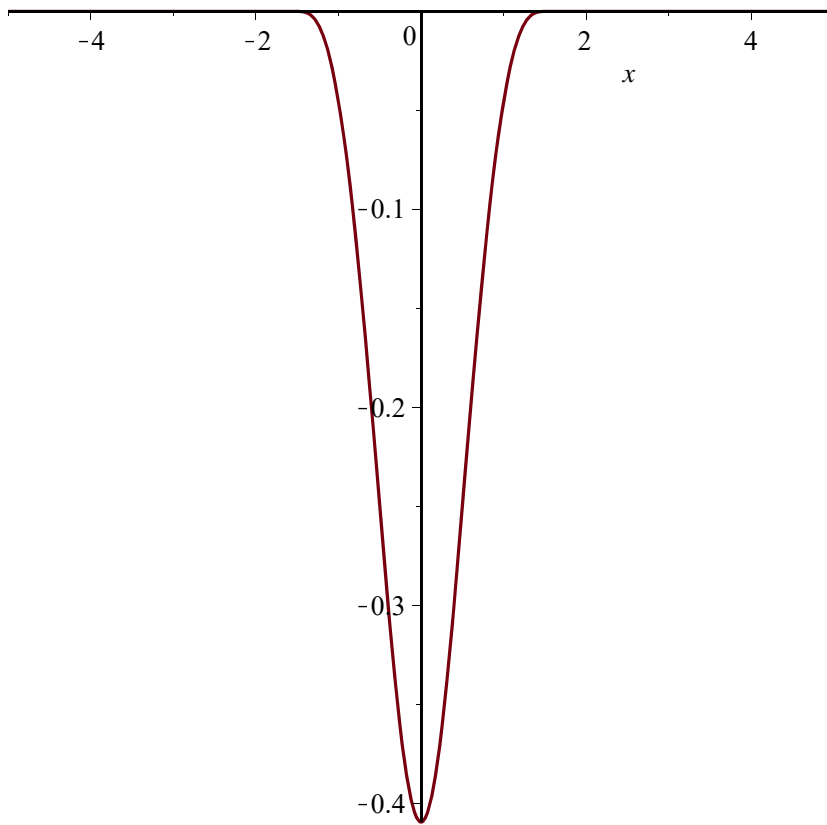
$$u1 := \begin{cases} -\frac{1}{2} \frac{\cos\left(-\frac{1}{2} \pi x\right) \sin\left(-\frac{1}{2} \pi x\right) + \cos\left(\frac{1}{2} \pi x\right) \sin\left(\frac{1}{2} \pi x\right)}{\pi} & -1 < x \text{ and } x < 1 \\ -\frac{1}{4} \frac{-\pi x + 2 \cos\left(-\frac{1}{2} \pi x\right) \sin\left(-\frac{1}{2} \pi x\right) + \pi}{\pi} & -1 < x \text{ and } x < 1 \text{ and } 1 < x \\ -\frac{1}{4} \frac{\pi x + 2 \cos\left(\frac{1}{2} \pi x\right) \sin\left(\frac{1}{2} \pi x\right) + \pi}{\pi} & x < -1 \text{ and } -1 < x \text{ and } x < 1 \\ -\frac{1}{2} & x < -1 \text{ and } 1 < x \\ 0 & \text{otherwise} \end{cases}$$



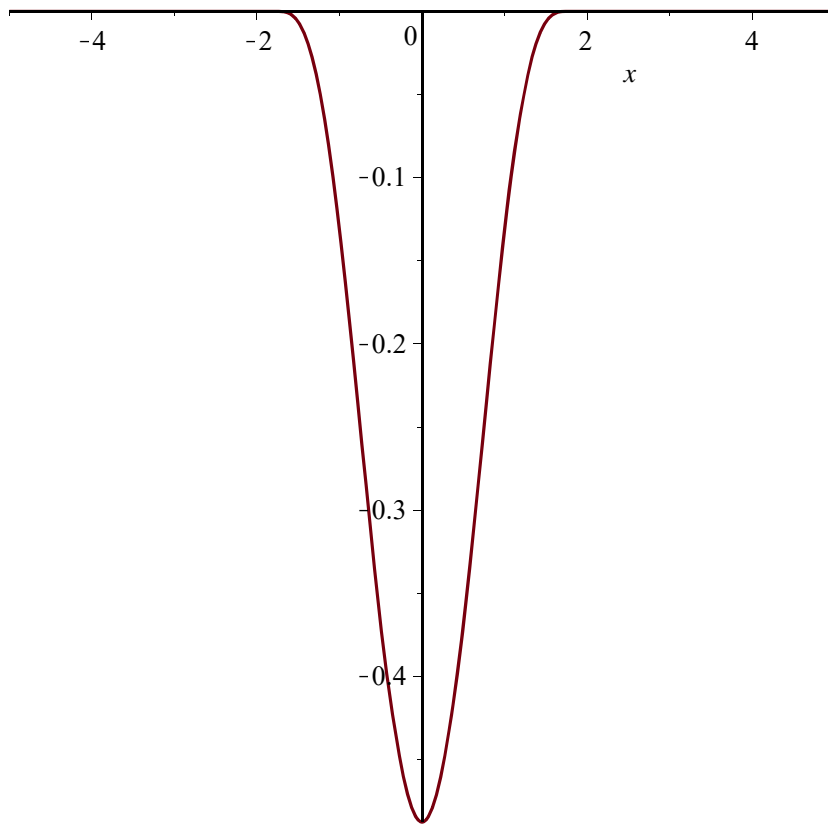
$$\begin{aligned}
 ul := & \left\{ \begin{aligned}
 & -\frac{1}{2} \frac{0.25 \pi + \cos\left(\frac{1}{2} \pi (-x + 0.25)\right) \sin\left(\frac{1}{2} \pi (-x + 0.25)\right) + \cos\left(\frac{1}{2} \pi (x + 0.25)\right) \sin\left(\frac{1}{2} \pi (x + 0.25)\right)}{\pi} \\
 & -\frac{1}{4} \frac{1.25 \pi - \pi x + 2 \cos\left(\frac{1}{2} \pi (-x + 0.25)\right) \sin\left(\frac{1}{2} \pi (-x + 0.25)\right)}{\pi} \\
 & -\frac{1}{4} \frac{1.25 \pi + \pi x + 2 \cos\left(\frac{1}{2} \pi (x + 0.25)\right) \sin\left(\frac{1}{2} \pi (x + 0.25)\right)}{\pi} \\
 & -\frac{1}{2} \\
 & 0
 \end{aligned} \right.
 \end{aligned}$$



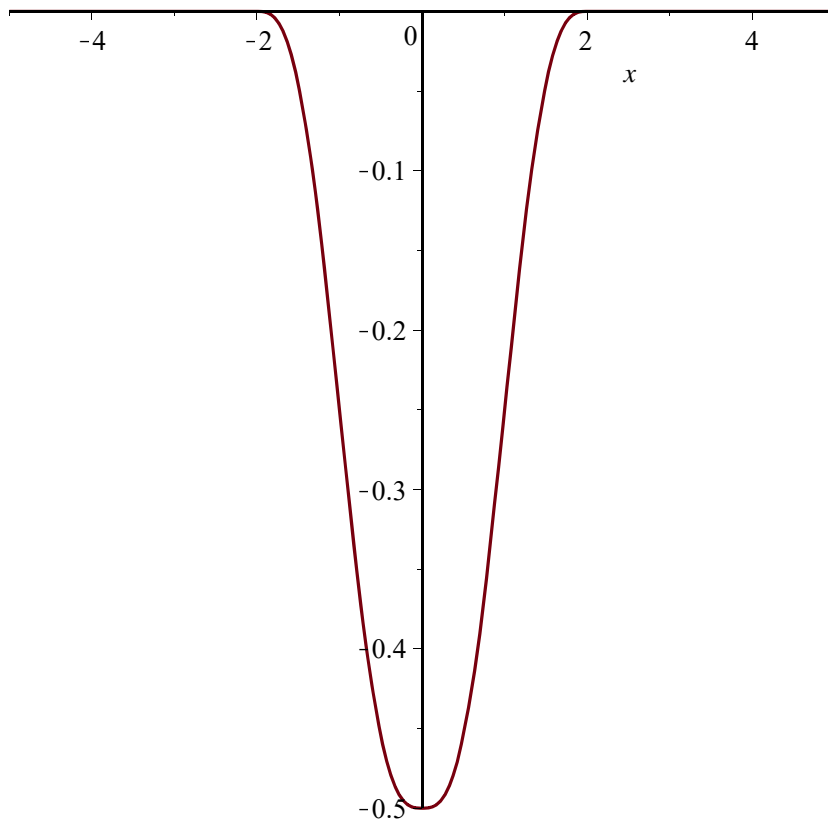
$$u1 := \left\{ \begin{array}{l}
 -\frac{1}{2} \frac{0.50 \pi + \cos\left(\frac{1}{2} \pi (-x + 0.50)\right) \sin\left(\frac{1}{2} \pi (-x + 0.50)\right) + \cos\left(\frac{1}{2} \pi (x + 0.50)\right) \sin\left(\frac{1}{2} \pi (x + 0.50)\right)}{\pi} \\
 -\frac{1}{4} \frac{1.50 \pi - \pi x + 2 \cos\left(\frac{1}{2} \pi (-x + 0.50)\right) \sin\left(\frac{1}{2} \pi (-x + 0.50)\right)}{\pi} \\
 -\frac{1}{4} \frac{1.50 \pi + \pi x + 2 \cos\left(\frac{1}{2} \pi (x + 0.50)\right) \sin\left(\frac{1}{2} \pi (x + 0.50)\right)}{\pi} \\
 -\frac{1}{2} \\
 0
 \end{array} \right.$$



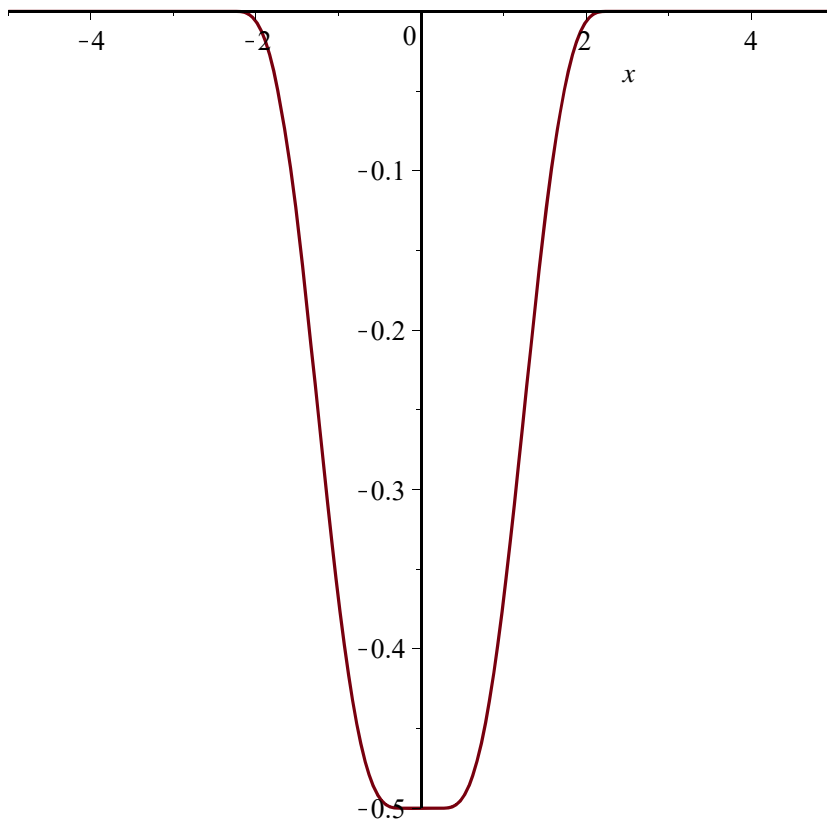
$$\begin{aligned}
 ul := & \left\{ \begin{aligned}
 & -\frac{1}{2} \frac{0.75 \pi + \cos\left(\frac{1}{2} \pi (0.75 - x)\right) \sin\left(\frac{1}{2} \pi (0.75 - x)\right) + \cos\left(\frac{1}{2} \pi (x + 0.75)\right) \sin\left(\frac{1}{2} \pi (x + 0.75)\right)}{\pi} \\
 & -\frac{1}{4} \frac{1.75 \pi - \pi x + 2 \cos\left(\frac{1}{2} \pi (0.75 - x)\right) \sin\left(\frac{1}{2} \pi (0.75 - x)\right)}{\pi} \\
 & -\frac{1}{4} \frac{1.75 \pi + \pi x + 2 \cos\left(\frac{1}{2} \pi (x + 0.75)\right) \sin\left(\frac{1}{2} \pi (x + 0.75)\right)}{\pi} \\
 & -\frac{1}{2} \\
 & 0
 \end{aligned} \right.
 \end{aligned}$$



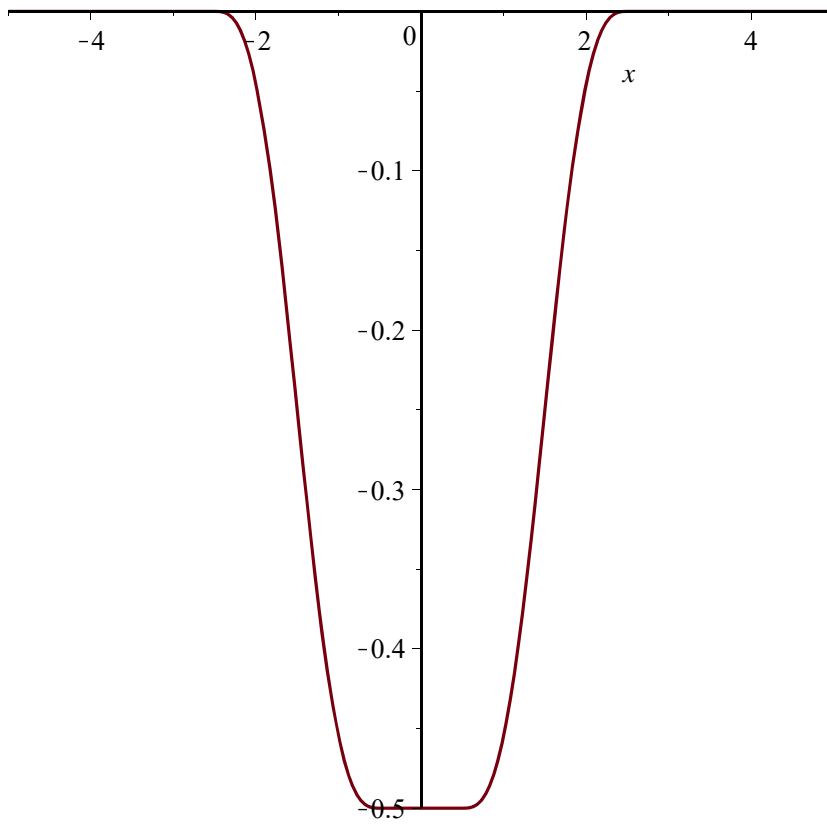
$$u1 := \left\{ \begin{array}{l}
 -\frac{1}{2} \frac{1.00 \pi + \cos\left(\frac{1}{2} \pi (-x + 1.00)\right) \sin\left(\frac{1}{2} \pi (-x + 1.00)\right) + \cos\left(\frac{1}{2} \pi (x + 1.00)\right) \sin\left(\frac{1}{2} \pi (x + 1.00)\right)}{\pi} \\
 -\frac{1}{4} \frac{2.00 \pi - \pi x + 2 \cos\left(\frac{1}{2} \pi (-x + 1.00)\right) \sin\left(\frac{1}{2} \pi (-x + 1.00)\right)}{\pi} \\
 -\frac{1}{4} \frac{2.00 \pi + \pi x + 2 \cos\left(\frac{1}{2} \pi (x + 1.00)\right) \sin\left(\frac{1}{2} \pi (x + 1.00)\right)}{\pi} \\
 -\frac{1}{2} \\
 0
 \end{array} \right.$$



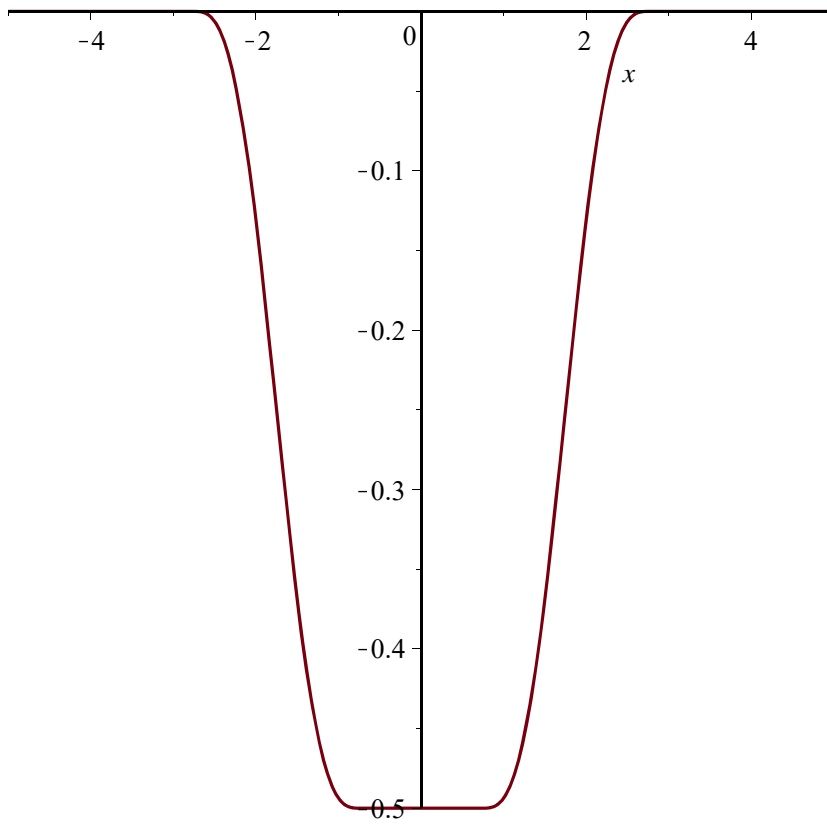
$$\begin{aligned}
 ul := & \left\{ \begin{aligned}
 & -\frac{1}{2} \frac{1.25 \pi + \cos\left(\frac{1}{2} \pi (1.25 - x)\right) \sin\left(\frac{1}{2} \pi (1.25 - x)\right) + \cos\left(\frac{1}{2} \pi (x + 1.25)\right) \sin\left(\frac{1}{2} \pi (x + 1.25)\right)}{\pi} \\
 & -\frac{1}{4} \frac{2.25 \pi - \pi x + 2 \cos\left(\frac{1}{2} \pi (1.25 - x)\right) \sin\left(\frac{1}{2} \pi (1.25 - x)\right)}{\pi} \\
 & -\frac{1}{4} \frac{2.25 \pi + \pi x + 2 \cos\left(\frac{1}{2} \pi (x + 1.25)\right) \sin\left(\frac{1}{2} \pi (x + 1.25)\right)}{\pi} \\
 & -\frac{1}{2} \\
 & 0
 \end{aligned} \right.
 \end{aligned}$$



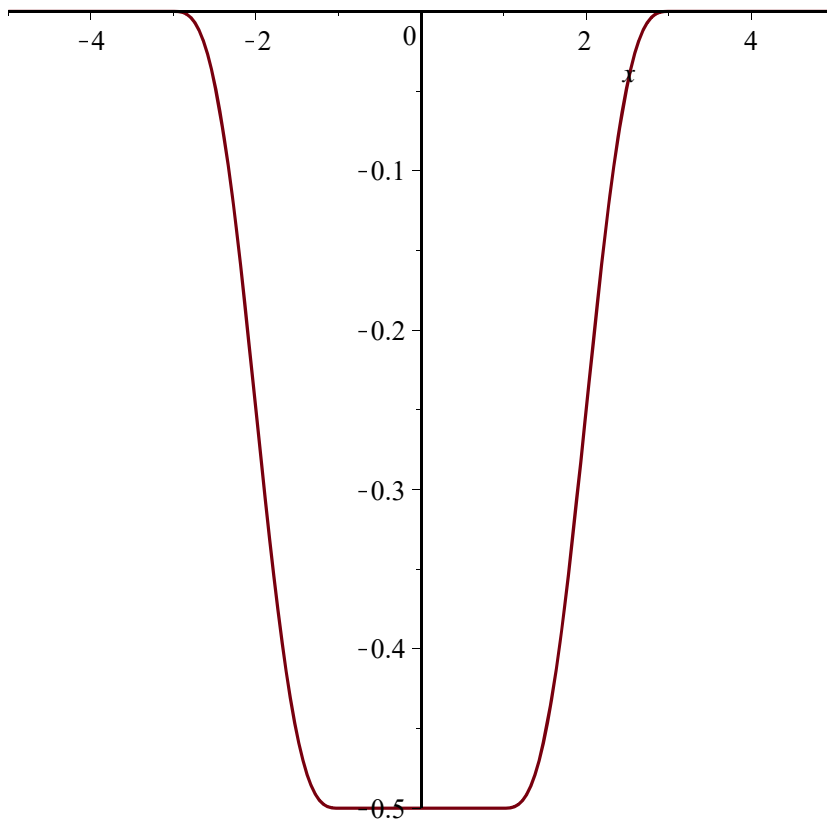
$$u1 := \left\{ \begin{aligned}
 & -\frac{1}{2} \frac{1.50 \pi + \cos\left(\frac{1}{2} \pi (1.50 - x)\right) \sin\left(\frac{1}{2} \pi (1.50 - x)\right) + \cos\left(\frac{1}{2} \pi (x + 1.50)\right) \sin\left(\frac{1}{2} \pi (x + 1.50)\right)}{\pi} \\
 & -\frac{1}{4} \frac{2.50 \pi - \pi x + 2 \cos\left(\frac{1}{2} \pi (1.50 - x)\right) \sin\left(\frac{1}{2} \pi (1.50 - x)\right)}{\pi} \\
 & -\frac{1}{4} \frac{2.50 \pi + \pi x + 2 \cos\left(\frac{1}{2} \pi (x + 1.50)\right) \sin\left(\frac{1}{2} \pi (x + 1.50)\right)}{\pi} \\
 & -\frac{1}{2} \\
 & 0
 \end{aligned} \right.$$



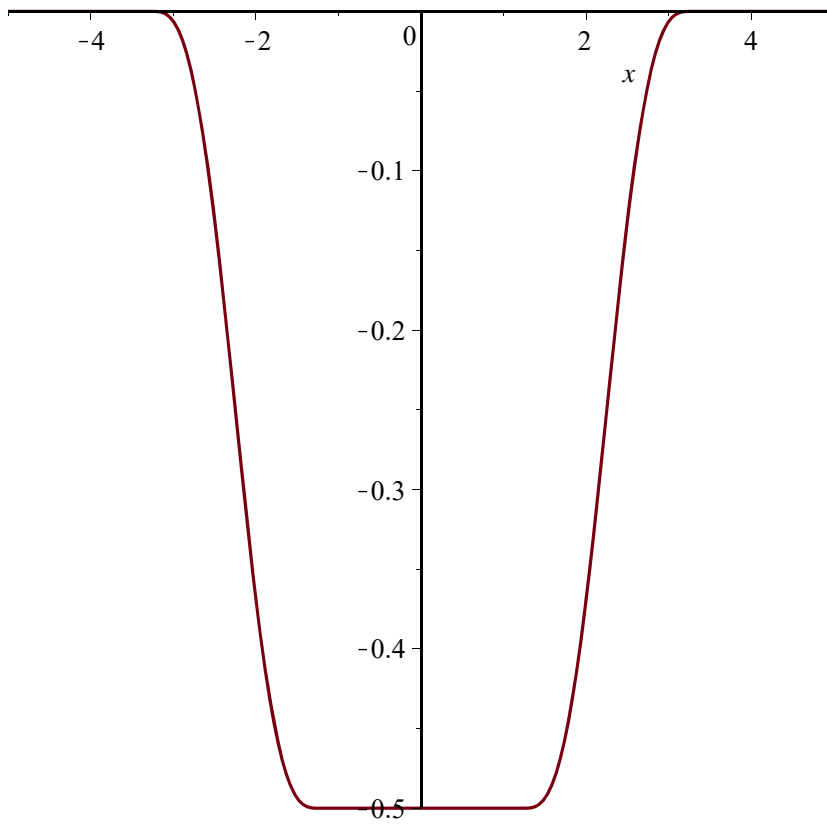
$$u(x) := \left\{ \begin{aligned} & -\frac{1}{2} \frac{1.75\pi + \cos\left(\frac{1}{2}\pi(1.75-x)\right)\sin\left(\frac{1}{2}\pi(1.75-x)\right) + \cos\left(\frac{1}{2}\pi(x+1.75)\right)\sin\left(\frac{1}{2}\pi(x+1.75)\right)}{\pi} \\ & -\frac{1}{4} \frac{2.75\pi - \pi x + 2\cos\left(\frac{1}{2}\pi(1.75-x)\right)\sin\left(\frac{1}{2}\pi(1.75-x)\right)}{\pi} \\ & -\frac{1}{4} \frac{2.75\pi + \pi x + 2\cos\left(\frac{1}{2}\pi(x+1.75)\right)\sin\left(\frac{1}{2}\pi(x+1.75)\right)}{\pi} \\ & -\frac{1}{2} \\ & 0 \end{aligned} \right.$$



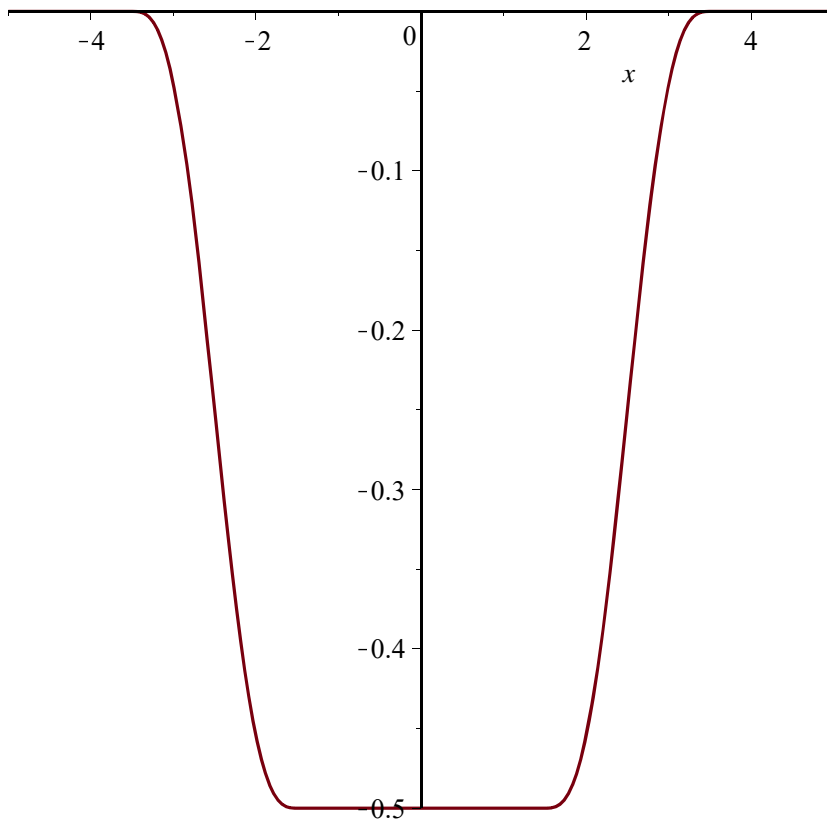
$$\begin{aligned}
 ul := & \left\{ \begin{aligned}
 & -\frac{1}{2} \frac{2.00 \pi + \cos\left(\frac{1}{2} \pi (2.00 - x)\right) \sin\left(\frac{1}{2} \pi (2.00 - x)\right) + \cos\left(\frac{1}{2} \pi (x + 2.00)\right) \sin\left(\frac{1}{2} \pi (x + 2.00)\right)}{\pi} \\
 & -\frac{1}{4} \frac{3.00 \pi - \pi x + 2 \cos\left(\frac{1}{2} \pi (2.00 - x)\right) \sin\left(\frac{1}{2} \pi (2.00 - x)\right)}{\pi} \\
 & -\frac{1}{4} \frac{3.00 \pi + \pi x + 2 \cos\left(\frac{1}{2} \pi (x + 2.00)\right) \sin\left(\frac{1}{2} \pi (x + 2.00)\right)}{\pi} \\
 & -\frac{1}{2} \\
 & 0
 \end{aligned} \right.
 \end{aligned}$$



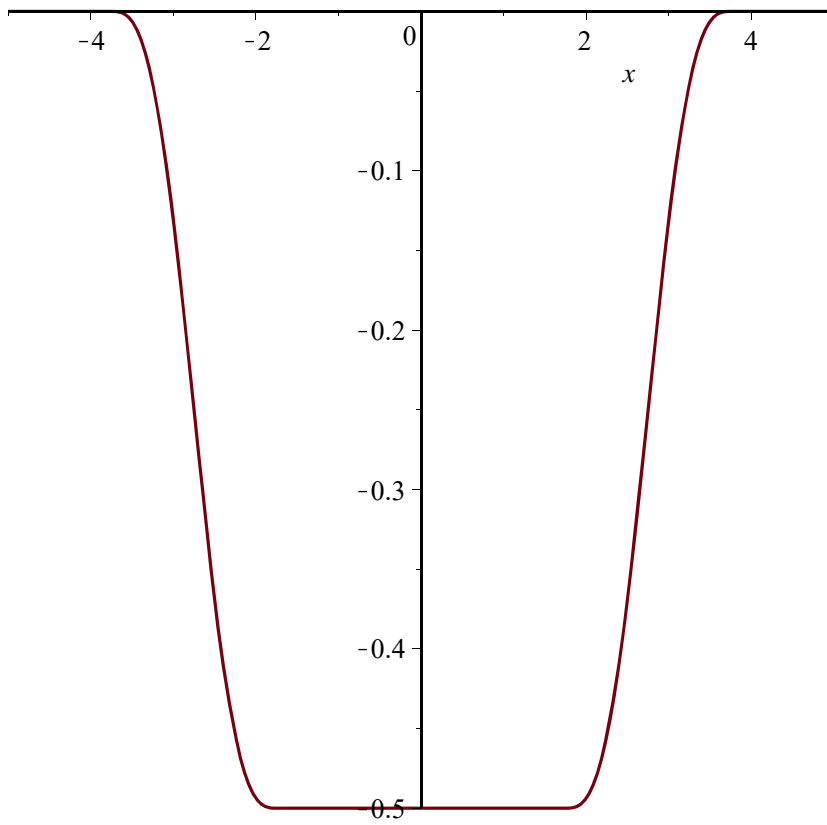
$$u1 := \left\{ \begin{aligned}
 & -\frac{1}{2} \frac{2.25 \pi + \cos\left(\frac{1}{2} \pi (2.25 - x)\right) \sin\left(\frac{1}{2} \pi (2.25 - x)\right) + \cos\left(\frac{1}{2} \pi (x + 2.25)\right) \sin\left(\frac{1}{2} \pi (x + 2.25)\right)}{\pi} \\
 & -\frac{1}{4} \frac{3.25 \pi - \pi x + 2 \cos\left(\frac{1}{2} \pi (2.25 - x)\right) \sin\left(\frac{1}{2} \pi (2.25 - x)\right)}{\pi} \\
 & -\frac{1}{4} \frac{3.25 \pi + \pi x + 2 \cos\left(\frac{1}{2} \pi (x + 2.25)\right) \sin\left(\frac{1}{2} \pi (x + 2.25)\right)}{\pi} \\
 & -\frac{1}{2} \\
 & 0
 \end{aligned} \right.$$



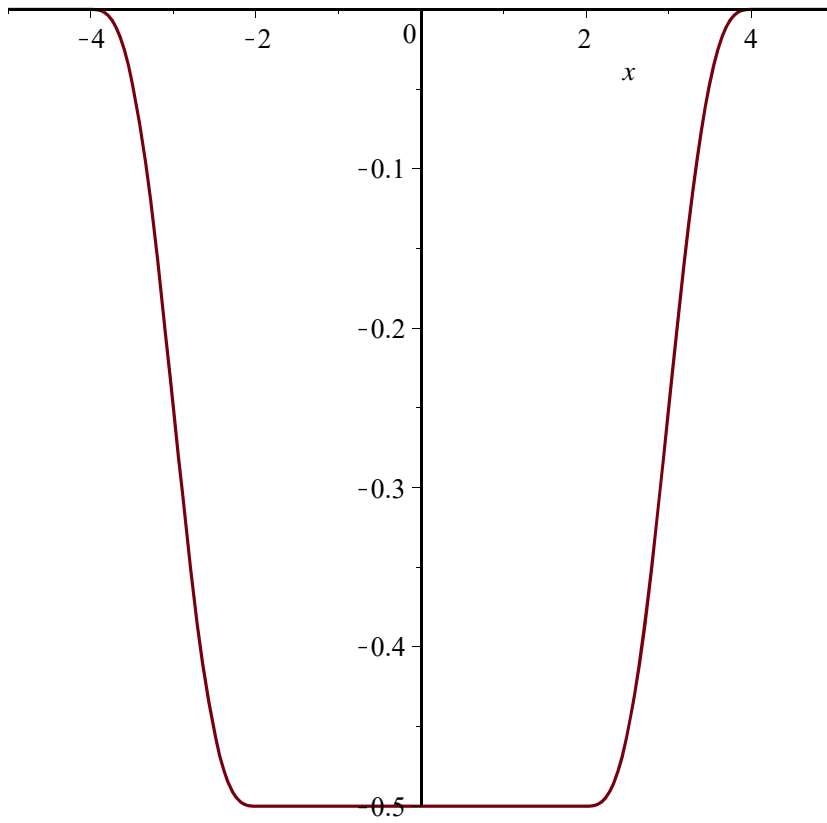
$$\begin{aligned}
 ul := & \left\{ \begin{aligned}
 & -\frac{1}{2} \frac{2.50 \pi + \cos\left(\frac{1}{2} \pi (2.50 - x)\right) \sin\left(\frac{1}{2} \pi (2.50 - x)\right) + \cos\left(\frac{1}{2} \pi (x + 2.50)\right) \sin\left(\frac{1}{2} \pi (x + 2.50)\right)}{\pi} \\
 & -\frac{1}{4} \frac{3.50 \pi - \pi x + 2 \cos\left(\frac{1}{2} \pi (2.50 - x)\right) \sin\left(\frac{1}{2} \pi (2.50 - x)\right)}{\pi} \\
 & -\frac{1}{4} \frac{3.50 \pi + \pi x + 2 \cos\left(\frac{1}{2} \pi (x + 2.50)\right) \sin\left(\frac{1}{2} \pi (x + 2.50)\right)}{\pi} \\
 & -\frac{1}{2} \\
 & 0
 \end{aligned} \right.
 \end{aligned}$$



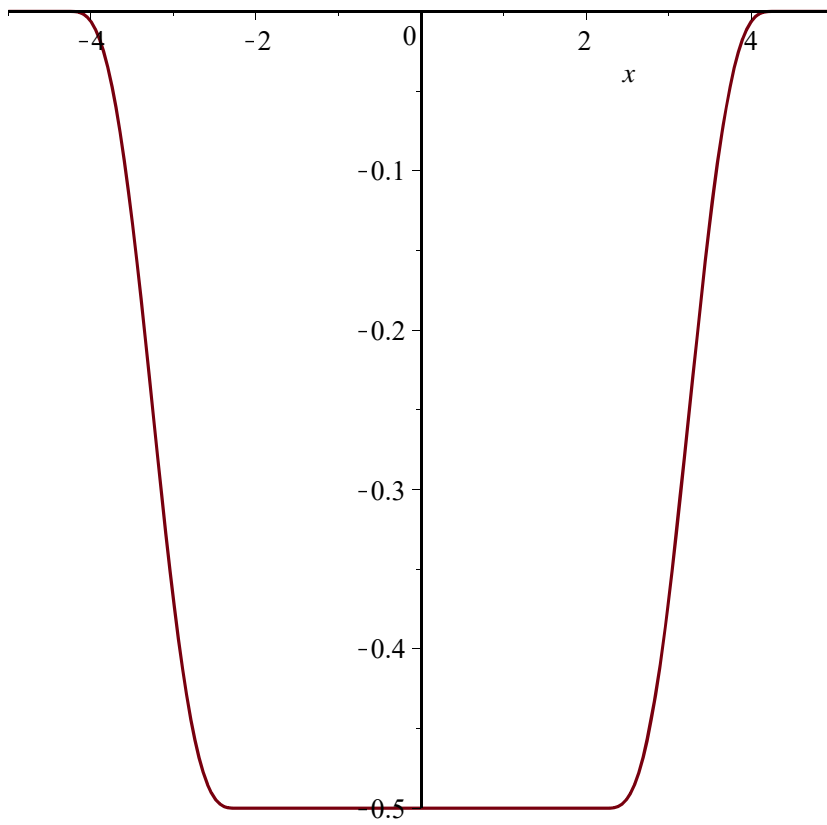
$$u1 := \left\{ \begin{aligned}
 & -\frac{1}{2} \frac{2.75 \pi + \cos\left(\frac{1}{2} \pi (2.75 - x)\right) \sin\left(\frac{1}{2} \pi (2.75 - x)\right) + \cos\left(\frac{1}{2} \pi (x + 2.75)\right) \sin\left(\frac{1}{2} \pi (x + 2.75)\right)}{\pi} \\
 & -\frac{1}{4} \frac{3.75 \pi - \pi x + 2 \cos\left(\frac{1}{2} \pi (2.75 - x)\right) \sin\left(\frac{1}{2} \pi (2.75 - x)\right)}{\pi} \\
 & -\frac{1}{4} \frac{3.75 \pi + \pi x + 2 \cos\left(\frac{1}{2} \pi (x + 2.75)\right) \sin\left(\frac{1}{2} \pi (x + 2.75)\right)}{\pi} \\
 & -\frac{1}{2} \\
 & 0
 \end{aligned} \right.$$



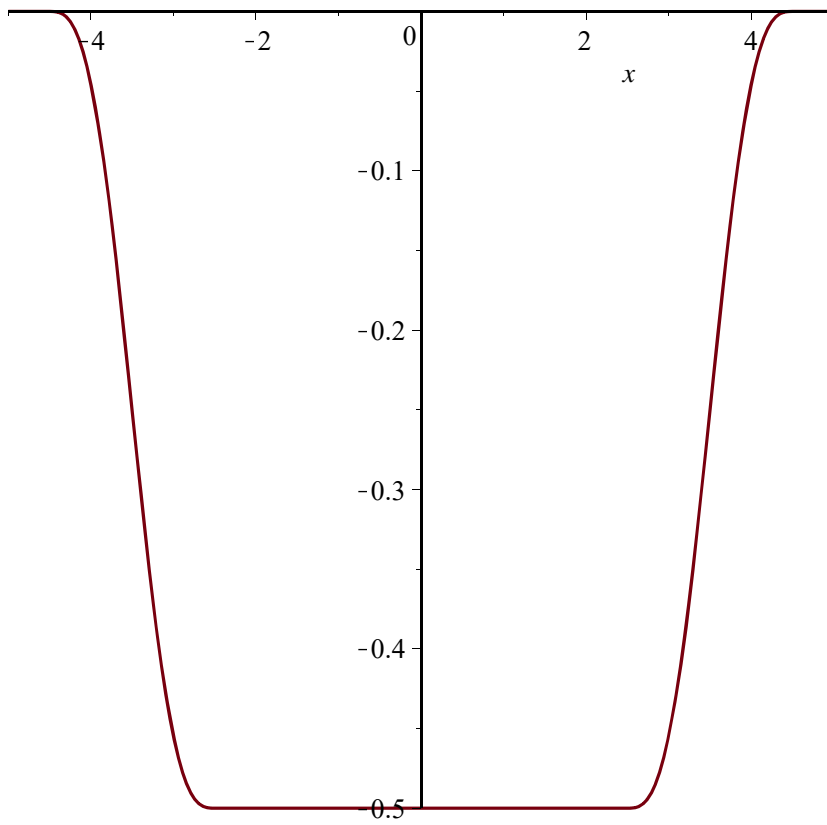
$$u1 := \left\{ \begin{aligned}
 &-\frac{1}{2} \frac{3.00 \pi + \cos\left(\frac{1}{2} \pi (3.00 - x)\right) \sin\left(\frac{1}{2} \pi (3.00 - x)\right) + \cos\left(\frac{1}{2} \pi (x + 3.00)\right) \sin\left(\frac{1}{2} \pi (x + 3.00)\right)}{\pi} \\
 &-\frac{1}{4} \frac{4.00 \pi - \pi x + 2 \cos\left(\frac{1}{2} \pi (3.00 - x)\right) \sin\left(\frac{1}{2} \pi (3.00 - x)\right)}{\pi} \\
 &-\frac{1}{4} \frac{4.00 \pi + \pi x + 2 \cos\left(\frac{1}{2} \pi (x + 3.00)\right) \sin\left(\frac{1}{2} \pi (x + 3.00)\right)}{\pi} \\
 &-\frac{1}{2} \\
 &0
 \end{aligned} \right.$$



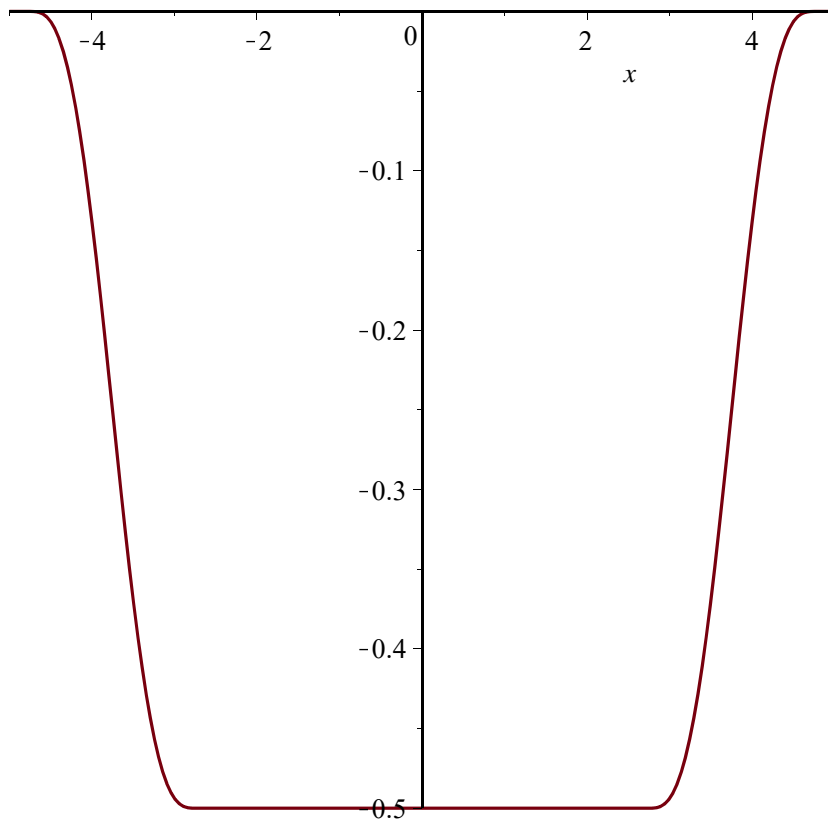
$$u1 := \left\{ \begin{array}{l}
 -\frac{1}{2} \frac{3.25 \pi + \cos\left(\frac{1}{2} \pi (3.25 - x)\right) \sin\left(\frac{1}{2} \pi (3.25 - x)\right) + \cos\left(\frac{1}{2} \pi (x + 3.25)\right) \sin\left(\frac{1}{2} \pi (x + 3.25)\right)}{\pi} \\
 -\frac{1}{4} \frac{4.25 \pi - \pi x + 2 \cos\left(\frac{1}{2} \pi (3.25 - x)\right) \sin\left(\frac{1}{2} \pi (3.25 - x)\right)}{\pi} \\
 -\frac{1}{4} \frac{4.25 \pi + \pi x + 2 \cos\left(\frac{1}{2} \pi (x + 3.25)\right) \sin\left(\frac{1}{2} \pi (x + 3.25)\right)}{\pi} \\
 -\frac{1}{2} \\
 0
 \end{array} \right.$$



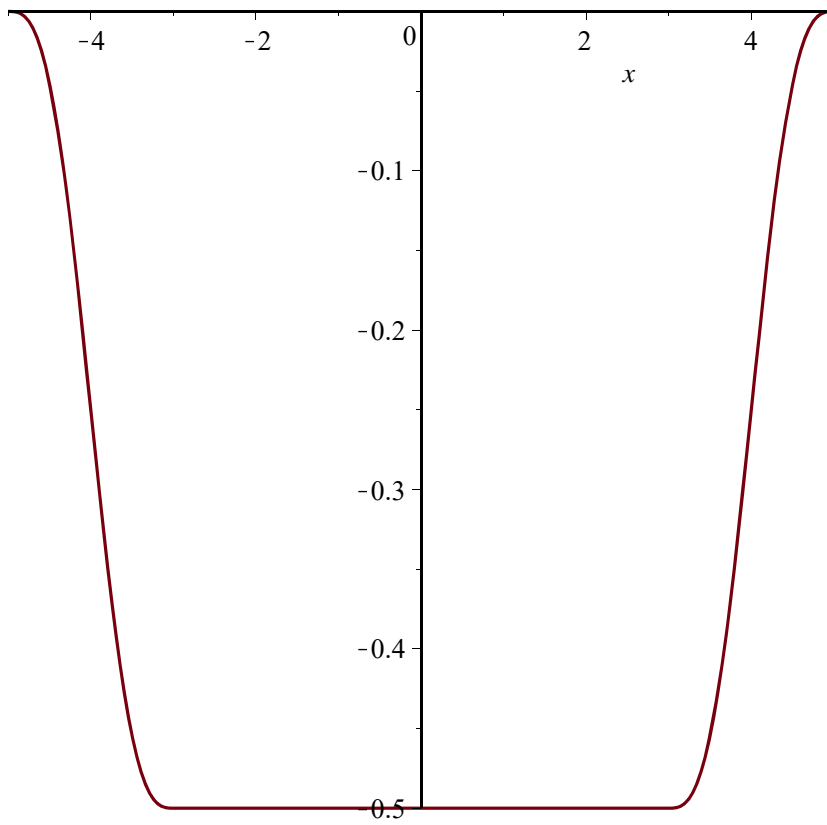
$$u1 := \left\{ \begin{aligned}
 & -\frac{1}{2} \frac{3.50 \pi + \cos\left(\frac{1}{2} \pi (3.50 - x)\right) \sin\left(\frac{1}{2} \pi (3.50 - x)\right) + \cos\left(\frac{1}{2} \pi (x + 3.50)\right) \sin\left(\frac{1}{2} \pi (x + 3.50)\right)}{\pi} \\
 & -\frac{1}{4} \frac{4.50 \pi - \pi x + 2 \cos\left(\frac{1}{2} \pi (3.50 - x)\right) \sin\left(\frac{1}{2} \pi (3.50 - x)\right)}{\pi} \\
 & -\frac{1}{4} \frac{4.50 \pi + \pi x + 2 \cos\left(\frac{1}{2} \pi (x + 3.50)\right) \sin\left(\frac{1}{2} \pi (x + 3.50)\right)}{\pi} \\
 & -\frac{1}{2} \\
 & 0
 \end{aligned} \right.$$



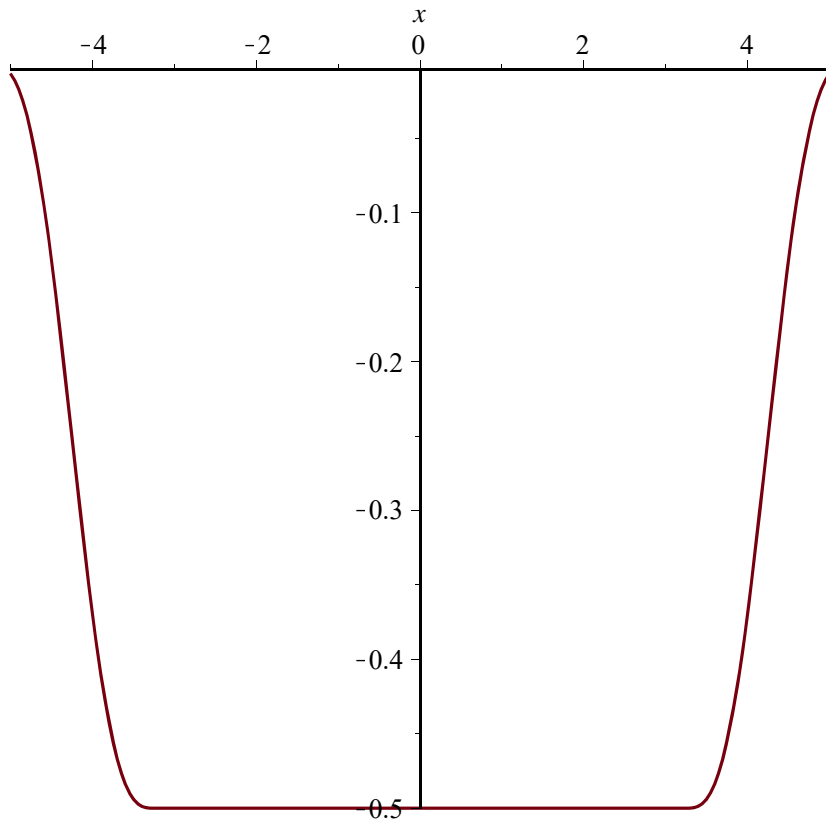
$$u1 := \left\{ \begin{array}{l}
 -\frac{1}{2} \frac{3.75 \pi + \cos\left(\frac{1}{2} \pi (3.75 - x)\right) \sin\left(\frac{1}{2} \pi (3.75 - x)\right) + \cos\left(\frac{1}{2} \pi (x + 3.75)\right) \sin\left(\frac{1}{2} \pi (x + 3.75)\right)}{\pi} \\
 -\frac{1}{4} \frac{4.75 \pi - \pi x + 2 \cos\left(\frac{1}{2} \pi (3.75 - x)\right) \sin\left(\frac{1}{2} \pi (3.75 - x)\right)}{\pi} \\
 -\frac{1}{4} \frac{4.75 \pi + \pi x + 2 \cos\left(\frac{1}{2} \pi (x + 3.75)\right) \sin\left(\frac{1}{2} \pi (x + 3.75)\right)}{\pi} \\
 -\frac{1}{2} \\
 0
 \end{array} \right.$$



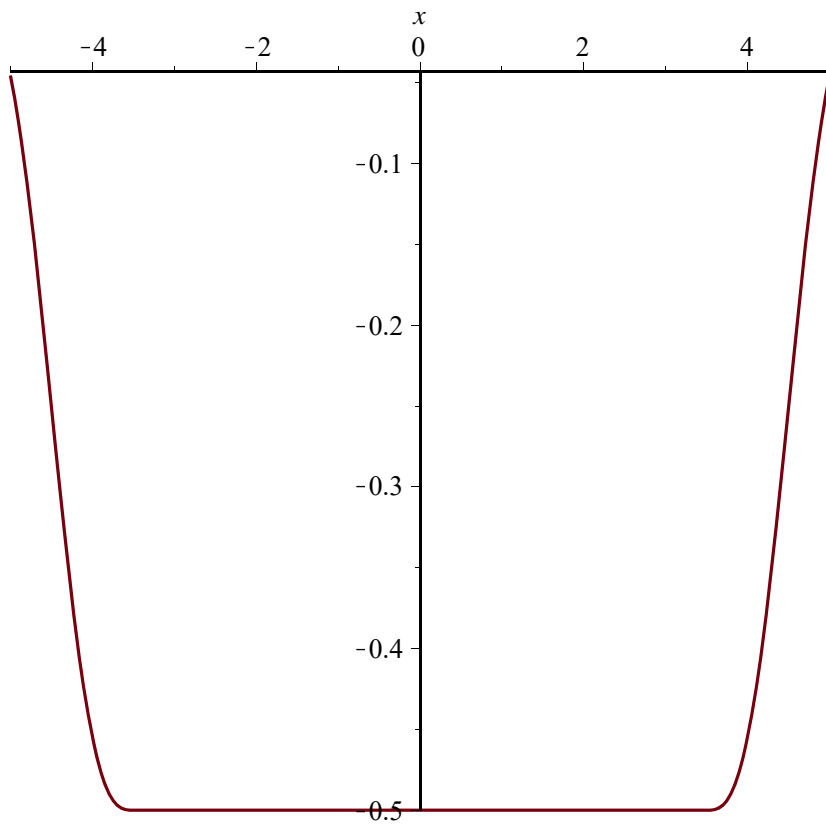
$$u_1 := \left\{ \begin{aligned} &-\frac{1}{2} \frac{4.00 \pi + \cos\left(\frac{1}{2} \pi (4.00 - x)\right) \sin\left(\frac{1}{2} \pi (4.00 - x)\right) + \cos\left(\frac{1}{2} \pi (x + 4.00)\right) \sin\left(\frac{1}{2} \pi (x + 4.00)\right)}{\pi} \\ &-\frac{1}{4} \frac{5.00 \pi - \pi x + 2 \cos\left(\frac{1}{2} \pi (4.00 - x)\right) \sin\left(\frac{1}{2} \pi (4.00 - x)\right)}{\pi} \\ &-\frac{1}{4} \frac{5.00 \pi + \pi x + 2 \cos\left(\frac{1}{2} \pi (x + 4.00)\right) \sin\left(\frac{1}{2} \pi (x + 4.00)\right)}{\pi} \\ &-\frac{1}{2} \\ &0 \end{aligned} \right.$$



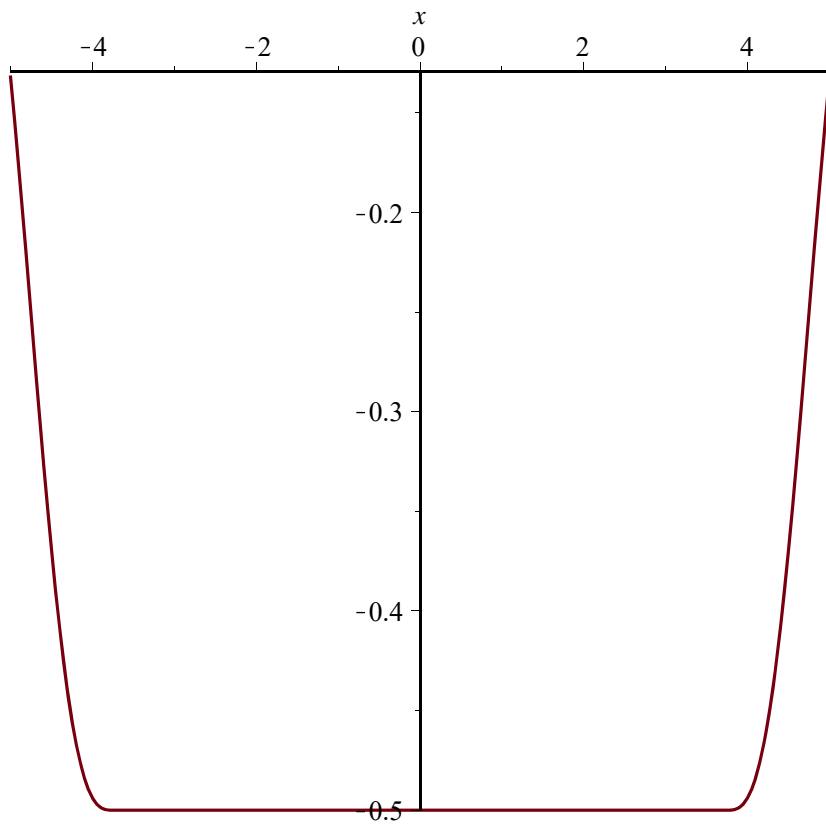
$$u_1 := \left\{ \begin{aligned} & -\frac{1}{2} \frac{4.25 \pi + \cos\left(\frac{1}{2} \pi (4.25 - x)\right) \sin\left(\frac{1}{2} \pi (4.25 - x)\right) + \cos\left(\frac{1}{2} \pi (x + 4.25)\right) \sin\left(\frac{1}{2} \pi (x + 4.25)\right)}{\pi} \\ & -\frac{1}{4} \frac{5.25 \pi - \pi x + 2 \cos\left(\frac{1}{2} \pi (4.25 - x)\right) \sin\left(\frac{1}{2} \pi (4.25 - x)\right)}{\pi} \\ & -\frac{1}{4} \frac{5.25 \pi + \pi x + 2 \cos\left(\frac{1}{2} \pi (x + 4.25)\right) \sin\left(\frac{1}{2} \pi (x + 4.25)\right)}{\pi} \\ & -\frac{1}{2} \\ & 0 \end{aligned} \right.$$



$$\begin{aligned}
 ul := & \left\{ \begin{aligned}
 & -\frac{1}{2} \frac{4.50 \pi + \cos\left(\frac{1}{2} \pi (4.50 - x)\right) \sin\left(\frac{1}{2} \pi (4.50 - x)\right) + \cos\left(\frac{1}{2} \pi (x + 4.50)\right) \sin\left(\frac{1}{2} \pi (x + 4.50)\right)}{\pi} \\
 & -\frac{1}{4} \frac{5.50 \pi - \pi x + 2 \cos\left(\frac{1}{2} \pi (4.50 - x)\right) \sin\left(\frac{1}{2} \pi (4.50 - x)\right)}{\pi} \\
 & -\frac{1}{4} \frac{5.50 \pi + \pi x + 2 \cos\left(\frac{1}{2} \pi (x + 4.50)\right) \sin\left(\frac{1}{2} \pi (x + 4.50)\right)}{\pi} \\
 & -\frac{1}{2} \\
 & 0
 \end{aligned} \right.
 \end{aligned}$$



$$\begin{aligned}
 ul := & \left\{ \begin{aligned}
 & -\frac{1}{2} \frac{4.75 \pi + \cos\left(\frac{1}{2} \pi (4.75 - x)\right) \sin\left(\frac{1}{2} \pi (4.75 - x)\right) + \cos\left(\frac{1}{2} \pi (x + 4.75)\right) \sin\left(\frac{1}{2} \pi (x + 4.75)\right)}{\pi} \\
 & -\frac{1}{4} \frac{5.75 \pi - \pi x + 2 \cos\left(\frac{1}{2} \pi (4.75 - x)\right) \sin\left(\frac{1}{2} \pi (4.75 - x)\right)}{\pi} \\
 & -\frac{1}{4} \frac{5.75 \pi + \pi x + 2 \cos\left(\frac{1}{2} \pi (x + 4.75)\right) \sin\left(\frac{1}{2} \pi (x + 4.75)\right)}{\pi} \\
 & -\frac{1}{2} \\
 & 0
 \end{aligned} \right.
 \end{aligned}$$



$$\begin{aligned}
 ul := & \left\{ \begin{aligned}
 & -\frac{1}{2} \frac{5.00 \pi + \cos\left(\frac{1}{2} \pi (5.00 - x)\right) \sin\left(\frac{1}{2} \pi (5.00 - x)\right) + \cos\left(\frac{1}{2} \pi (x + 5.00)\right) \sin\left(\frac{1}{2} \pi (x + 5.00)\right)}{\pi} \\
 & -\frac{1}{4} \frac{6.00 \pi - \pi x + 2 \cos\left(\frac{1}{2} \pi (5.00 - x)\right) \sin\left(\frac{1}{2} \pi (5.00 - x)\right)}{\pi} \\
 & -\frac{1}{4} \frac{6.00 \pi + \pi x + 2 \cos\left(\frac{1}{2} \pi (x + 5.00)\right) \sin\left(\frac{1}{2} \pi (x + 5.00)\right)}{\pi} \\
 & -\frac{1}{2} \\
 & 0
 \end{aligned} \right.
 \end{aligned}$$

