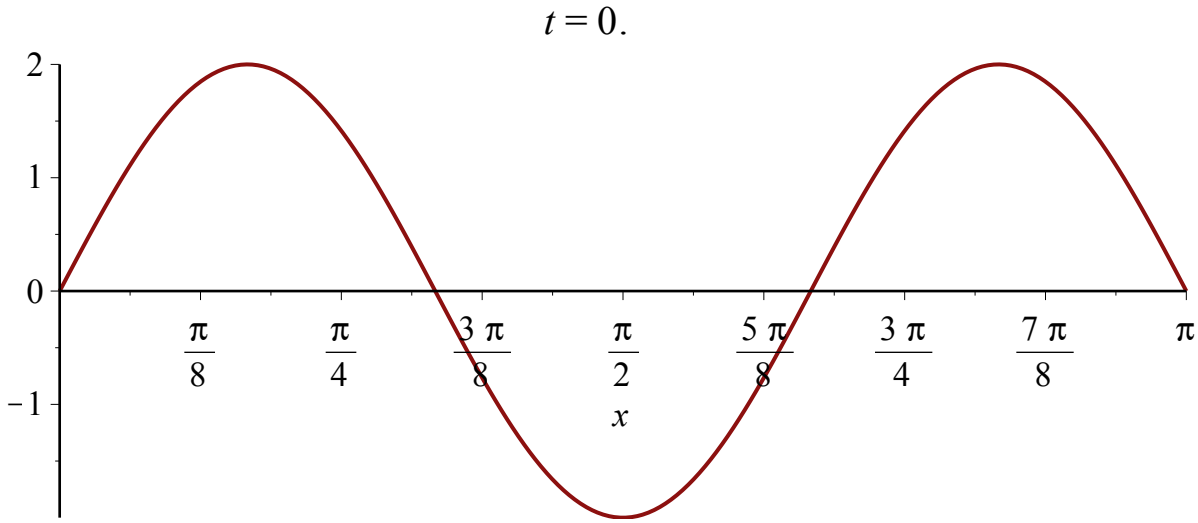
Maple Program to graph solution of Heat Equation:
u_t=ku_xx for x on [0,Pi]
u(0,t)=0, u(Pi,t)=0
u(x,0)=2sin(3x)

```
with(plots):
k := .05; u1(x, t) := 2·exp(-k·9·t)·sin(3·x);
```

$$0.05$$

$$(x, t) \rightarrow 2\, e^{-9\, k\, t} \sin(3\, x) \qquad \textbf{(1)}$$

```
animate(plot, [u1(x, t), x = 0..Pi], t = 0..10);
```



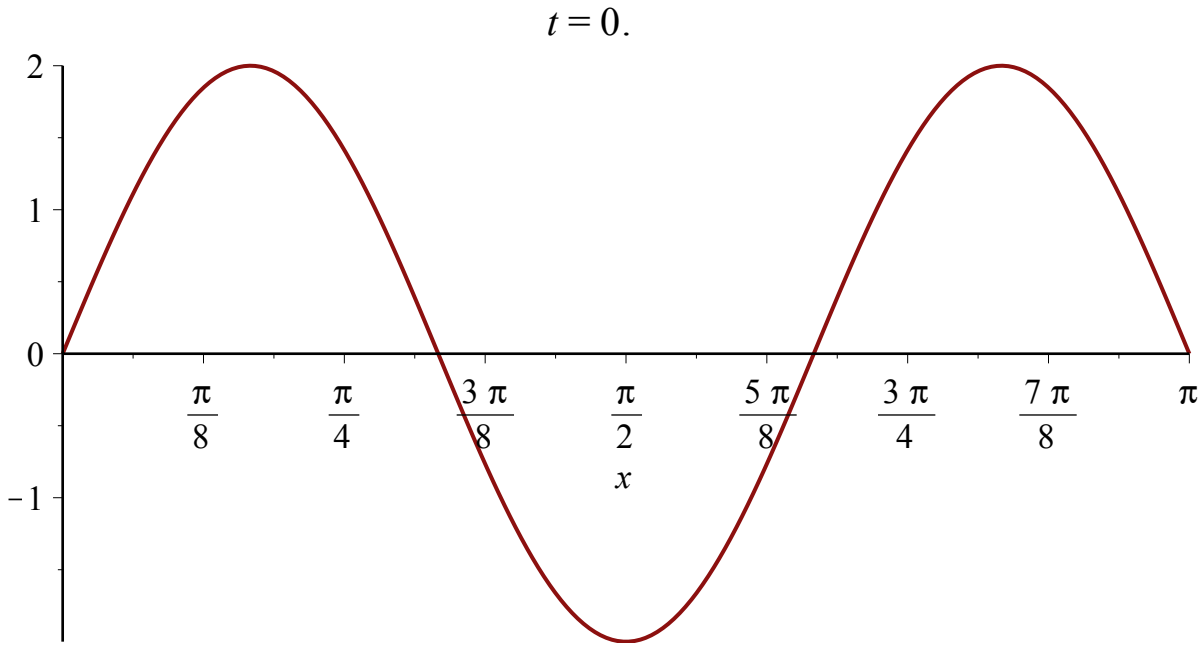
Maple Program to graph solution of Wave Equation:
u_tt=a^2u_xx for x on [0,Pi]
u(0,t)=0, u(Pi,t)=0
u(x,0)=2sin(3x)
u_t(x,0)=0

```
a := 1; u2(x, t) := 2·cos(3· t)·sin(3·x);
```

$$1$$

$$(x, t) \rightarrow 2 \cos(3\, t) \sin(3\, x) \qquad \textbf{(2)}$$

```
animate(plot, [u2(x, t), x = 0..Pi], t = 0..10);
```



Maple Program to graph solution of Wave Equation:
u_tt=a^2u_xx for x on [0,Pi]
u(0,t)=0, u(Pi,t)=0
u(x,0)=0
u_t(x,0)=2sin(3x)

$a := 1; u3(x,t) := \frac{2}{3}\cdot\sin(3\cdot t)\cdot\sin(3\cdot x);$

$$1$$

$$(x,t) \to \frac{2}{3}\sin(3\,t)\sin(3\,x) \qquad \textbf{(3)}$$

$animate(plot, [u3(x,t), x = 0..Pi], t = 0..10);$