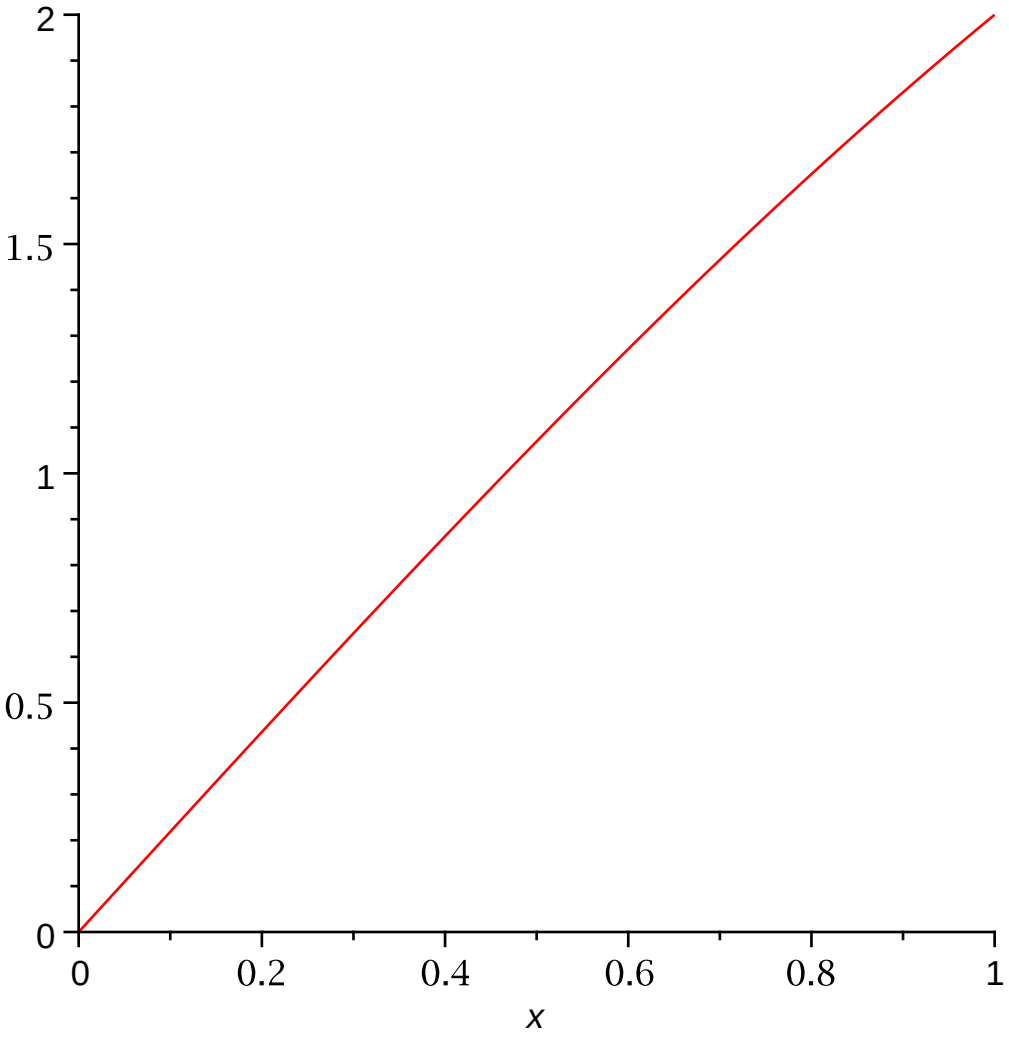
```
with(LinearAlgebra):
N := 20:
h := 1 / (N-1):
a := 1 / h^2:
c := 1 / h^2:
b := 1 - 2 / h^2:
y0 := 0:
yN := 2:
H := m -> Matrix(m+1,
    (i, j) -> `if`(i = j, `if`(i = 1 or i = m+1, 1, b),
                `if`(i = j+1, `if`(i = m+1, 0, a),
                    `if`(i = j-1, `if`(i = 1, 0, c), 0)))):
A := evalf(H(N-1)):
RHS := m -> Vector(m+1,
    (i) -> `if`(i = 1, y0, `if`(i = m+1, yN, (i-1)*h))):
bb := evalf(RHS(N-1)):
xn := evalf(LinearSolve(A, bb)):

y := x -> x + sin(x) / sin(1):
yerr := 0:
for j from 1 to N do
yerr := yerr + abs(evalf(xn[j]) - evalf(y((j-1)*h))):
 od:
yerr;
```

$$0.0002251878000 \qquad (1)$$

```
plot(y(x), x = 0..1);
```


2
1.5
1
0.5
0
0
0.2
0.4
0.6
0.8
1
x