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solution

Bernhard window

Clear

LLC

Sym 20

format short g

$$f = \exp(-0.5 * x) * (4 - x) - 2j$$

$$f_{prime} = \text{diff}(f)$$

$$x = 0.5$$

for i=1:10

if (i+1) = i,

$$x(i) = x$$

$$C(i+1) * x = \text{double}(C(i) * x) - (f / f_{prime})$$

$$x(i+1) = x$$

$$C(i+1) = \text{abs}(C(i) * x(i) - x(i) / x(i))$$

$$\text{if } (C(i+1)) < 1e-21$$

break

end

end

$$f_{prime} = \text{feval}('x', q('q'))$$

Table: Approximate Values of $\sin(x)$ and $\cos(x)$ for x in radians

Output

Table:

| Iter | Values of x | Errors |
|------|---------------|-----------------|
| 0 | 0.5 | 0 |
| 1 | 0.83889 | 40.397 |
| 2 | 0.88496 | 5.2054 |
| 3 | 0.88571 | 0.084972 |
| 4 | 0.88571 | $2.2247e^{-05}$ |
| 5 | 0.88571 | $1.5293e^{-12}$ |
| 6 | 0.88571 | 0 |