1.

```
>_ Console  ×  +
                                    ◉ Show Only Latest  🗑 Clear Past Runs
  ⌄  python3 mai...              ↪ Ask Assistant    345ms • Just now  ✓  ▲

Composite Trapezoidal Rule: 0.39614759
Composite Simpson's Rule:   0.38566360
Composite Midpoint Rule:    0.38080480
```

2.

```
>_ Console  ×  +
                                    ◉ Show Only Latest  🗑 Clear Past Runs
  ⌄  python3 mai...              ↪ Ask Assistant    2s • Just now  ✓  ▲

Gaussian Quadrature n=3: 0.19225938
Gaussian Quadrature n=4: 0.19225936
Exact value (scipy.quad): 0.19225936
誤差 (n=3): 1.95e-08
誤差 (n=4): 7.21e-11
```

3.

```
>_ Console  ×  +
                                    ◉ Show Only Latest  🗑 Clear Past Runs
  ⌄  python3 mai...              ↪ Ask Assistant    746ms • Just now  ✓  ▲

Simpson's Rule: 0.51198754
Gaussian Quadrature: 0.51186554
Exact value (dblquad): 0.51184464
誤差 (Simpson): 1.43e-04
誤差 (Gaussian): 2.09e-05
```

4.

```
>_ Console  ×  +
                                    ◉ Show Only Latest  🗑 Clear Past Runs
  ⌄  python3 mai...              ↪ Ask Assistant    348ms • Just now  ✓  ▲

(a) ∫₀¹ x^(-1/4) sin(x) dx ≈ 6.94708410
(b) ∫₁^∞ x^(-4) sin(x) dx ≈ 0.27465825
```