

HW 4.6

Use the Trapezoid Rule and Simpson's Rule to approximate the value of the definite integral for the given value of  $n$ . Round your answer to four decimal places and compare the results with the exact value of the definite integral.

$$3. \int_0^2 x^3 dx, \quad n = 4$$

$$9. \int_1^2 \frac{1}{(x+1)^2} dx, \quad n = 4$$

$$6. \int_0^8 \sqrt[3]{x} dx, \quad n = 8$$

Approximate the definite integral using the Trapezoid Rule and Simpson's Rule on your calculator with  $n=4$ .

$$11. \int_0^2 \sqrt{1+x^3} dx$$

$$15. \int_0^{\sqrt{\frac{\pi}{2}}} \cos x^2 dx$$

$$12. \int_0^2 \frac{1}{\sqrt{1+x^3}} dx$$

$$16. \int_0^{\sqrt{\frac{\pi}{4}}} \tan x^2 dx$$

$$13. \int_0^1 \sqrt{x} \sqrt{1-x} dx$$

$$17. \int_1^{1.1} \sin x^2 dx$$

$$14. \int_{\frac{\pi}{2}}^{\pi} \sqrt{x} \sin x dx$$

$$18. \int_0^{\frac{\pi}{2}} \sqrt{1+\cos^2 x} dx$$