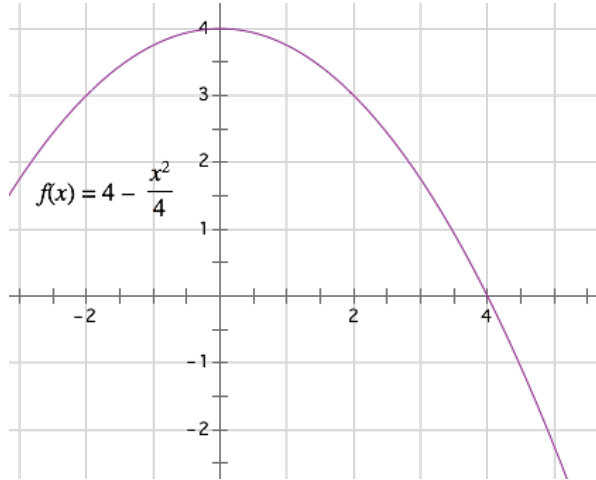


Calculus 5.5 Notes- The Trapezoidal Rule

Is there another way to approximate the area between to x-axis and

$$y = 4 - \frac{x^2}{4} \text{ over } [0, 4]$$



A formula for the trapezoidal rule with uniform intervals:

1. Use the trapezoidal rule to approximate the integral. Predict whether your approximation will be too high or too low.

$$\int_1^3 x^2 dx$$

$$\int_0^{\pi} \sin x dx$$

5.5

A rectangular swimming pool is 40 feet wide and 45 feet long and has depth $h(x)$. The following table shows the depths at 5 foot intervals. Estimate the volume of the pool using the trapezoidal rule.

Position (ft)	0	5	10	15	20	25	30	35	40	45
Depth (ft)	3	3.4	4	4.3	4.8	5.2	6.1	7.2	7.9	8

The table below shows the velocity of a speed skater at 1 second intervals for 8 seconds. Use the trapezoidal rule to approximate the distance the skater traveled in the first 8 seconds.

Time (sec)	0	1	2	3	4	5	6	7	8
Speed (miles/hr)	0	3	7	12	17	25	33	41	48