

Let  $\mathcal{I} = \int_5^{10} \cos\left(\frac{x^2}{3}\right) + x \, dx$

1. Calculate  $M_{1000}$  and  $T_{1000}$ .

Note: For large values of  $n$ , you may want to use the *ApproximateInt*( ) command described on the Maple cheat sheet.

2. Use Theorem 7.1 to determine how close are these to the actual value of  $\mathcal{I}$ .
3. Find a value of  $n$  so that  $M_n$  approximates  $\mathcal{I}$  accurate within 0.0001.