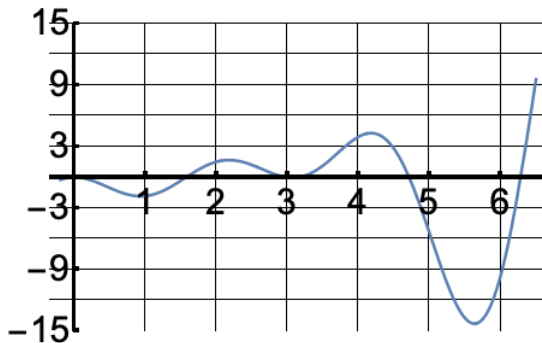
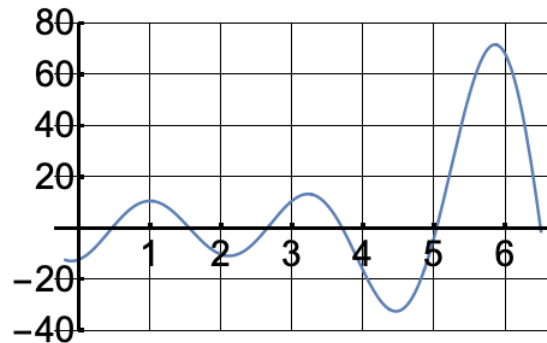


These are only a *few* sample problems to *help* you prepare for the exam. You should also be certain that you completely understand the WeBWorK assignments, Problems Sets, in-class work, and your class notes.

- You will certainly want to review all of the antidifferentiation problems from the homework and in-class work.
- The graphs of f'' and $f^{(4)}$ are shown below.

Plot of $y = f''(x)$ Plot of $y = f^{(4)}(x)$

- Let $I = \int_1^4 f(x) dx$. Compute an upper bound on the error $|I - T_{42}|$.
 - Let $I = \int_2^5 f(x) dx$. Find a value of n such that $|I - S_n| \leq 0.005$.
 - Let $I = \int_5^6 f(x) dx$. Will T_n overestimate or underestimate I ? Explain.
- Let R be the region bounded by the graphs $y = \sqrt{8x}$ and $y = x^2$. Find the volume of the solid formed when R is rotated about
 - The x -axis
 - The horizontal line $y = 5$
 - The y -axis
 - Set up the integral for each of the following. *You do not need to evaluate these integrals.*
 - The volume of the solid formed with the region R from #3 is rotated about the line $x = 6$
 - The length of the curve $y = x \sin(x) + 8$ from $x = 0$ to $x = \pi$
 - The area of the surface formed when the curve from (b) is rotated about the x -axis
 - In the theorem that gives the error term for the trapezoid rule when approximating a definite integral, why does the formula include M_2 , an upper bound for the second derivative of the integrand?
 - Let $I = \int_0^{2\pi} \sqrt{1 + \cos(x)^2} dx$. Be sure to include rough sketches to support your answers to this problem.
 - Interpret I as the area of a certain region R . What is R ?
 - Interpret I as the length of a curve C . What is C ?
 - Interpret I as the volume formed when the graph of a function $y = f(x)$ is rotated about the x -axis. What is $f(x)$?
 - Be sure to review all of the antidifferentiation problems from the homework and in-class work.