

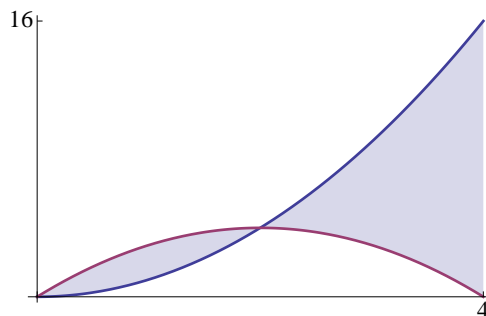


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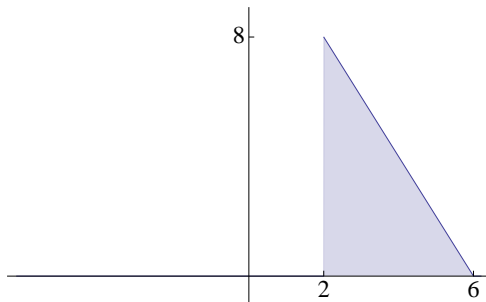
Instructions

1. Write your *Name*, *PID*, *Section*, and *Exam Version* on the front of your Blue Book.
2. No calculators or other electronic devices are allowed during this exam.
3. You may use one page of notes, but no books or other assistance during this exam.
4. Write your solutions clearly in your Blue Book
 - (a) Carefully indicate the number and letter of each question.
 - (b) Present your answers in the same order they appear in the exam.
5. Show all of your work; no credit will be given for unsupported answers.

1. (8 points) Find the area between the curves $y = x^2$ and $y = 4x - x^2$ over the interval from $x = 0$ to $x = 4$. (That is, find the area of the shaded region below.)



2. (8 points) Compute the definite integral: $\int_1^{e^2} \frac{(\ln x)^4}{x} dx$.
3. (8 points) Set up, but do not solve, an integral that will give the volume of the solid of revolution obtained by rotating the triangle about the y -axis. (*Do not compute the integral.*)



4. (8 points) Compute the indefinite integral: $\int e^{2x} \sin(3x) dx$.

(This exam is worth 32 points.)