Math 1432
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Visit CASA regularly for announcements and course material!

Read the syllabus posted on the course website.

If you email me, please mention the course (1432) in the subject line.

Access Code Deadline:

Did you take practice test 1? Test 1? Quiz 1?

Purchase Popper scantrons with your section number from UH Bookstore.

Respect your friends. Do not distract anyone during lectures.

Office Hours:

Monday: 10-10:40 a.m., 12-12:30pm
Wednesday: 10-10:40 a.m., 12-12:30pm
Friday: 10-10:40 a.m., 12-1pm.

Office: 212 PGH
Section 7.3 Area

Area Under the Graph of a Nonnegative Function

**Fact:** If \( y = f(x) \) is nonnegative and integrable over the interval \([a, b]\), then the area under the curve \( y = f(x) \) over \([a, b]\) is:

\[
A = \int_{a}^{b} f(x) \, dx.
\]

**Example:** Give the area bounded between the x-axis and the curve \( f(x) = x^2 - 3x - 4 \) over the interval \([-2, 3]\).
EXERCISE: Find the area between the x-axis and the graph of
\[ y = x^3 + x^2 - 2x \] for x between –3 and 2

\[ A = \int_{a}^{b} \left[ f(x) - g(x) \right] dx \]
Example: Find the area enclosed by the curves \( f(x) = 2x \) and \( g(x) = 3 - x^2 \).
Example: Sketch the region bounded by the graphs of the equations and determine the area of the enclosed region.

\[ y = 4x, \quad y = x^3 \]

Example: Set up the integral(s) that would give the area of the region bounded by

\[ f(x) = \sin x \text{ and } g(x) = \cos x, \text{ for } x \in [0, 2\pi] \]
Exercise: Find the area bounded by $f(x) = x$ and $g(x) = 2\sqrt{x}$.

Example:
Set up the definite integral(s) that gives the area of the shaded region.

$y = x^2 - 4x + 7$ \hspace{1cm} y = 6 - x

$y = 10 - 2x$ \hspace{1cm} Y = \sqrt{x}$
Piece-wise function:

Example: Find the area enclosed by the graph \( f(x) = \begin{cases} x^2 + 1, & \text{if} \ 0 < x < 1 \\ 4 - 2x, & \text{if} \ 1 \leq x \leq 2 \end{cases} \)

and the x-axis.

Example: Find the area enclosed by the graphs of \( y = |x| \) and \( 3y - x = 6 \).

Take practice test 1 and test 1 SOON!
Don’t wait until the due date to work on the homework or quizzes.
Check CASA regularly for announcements.