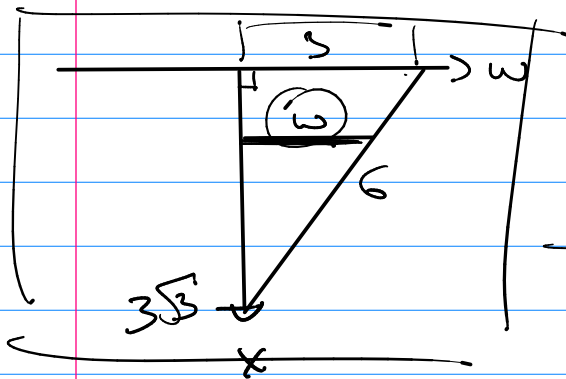


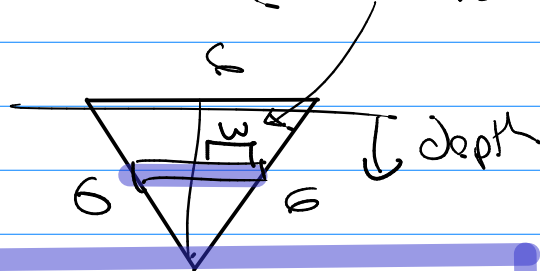
Math 243

~~Q5~~ | Exam 2 will be Wed

Tues has Campus torando drill @ 10 am!



$$w = \left(3 - \frac{1}{\sqrt{3}}x\right) \leftarrow$$



$$F_i = (s) \times (\text{Area}) \times (\text{Depth}) \leftarrow$$

$$F_i = \int \left(2 \left(3 - \frac{1}{\sqrt{3}}x\right) dx\right) (x)$$

$$A = 2 \int_0^{3\sqrt{3}} \left(3 - \frac{1}{\sqrt{3}}x\right) x dx$$

Exam 2

11 problems @ 10pts each
100pts = 100%

7.1 to 7.5

Integral techniques

(6 probs)

7.6 C.A.S. or Tables 1 problem

7.7 Approximations 1 problem

7.8 Improper Integral (Done as a chg prob)

8.1 Arc length

8.2 Area/Vol. of Revolution

8.3 Science! word problems

8.4

3 probs

Problems 1 to 6 Integration (Note: setup probs (do not solve)

① By Parts

② Trig Integral (only sin, cos) (solve \rightarrow 1 prob)

ex $\int \sin^2(3t) \cos^3(3t) dt$

③ Trig Substitution (will use $x = a \sin \theta$)

④ Partial Fraction Decomposition
Setup? (setup decomposition)

$$\frac{1}{x(x^2+1)^2(2x-3)} = \frac{A}{x} + \frac{Bx+C}{x^2+1} + \frac{Dx+E}{(x^2+1)^2} + \frac{F}{2x-3}$$

⑤ } integrals to do.
⑥ }

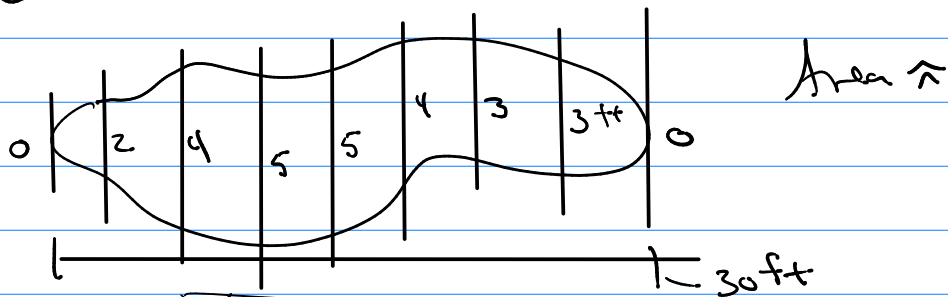
table of integrals

- ① gives a "table" with several integral rules
(+) gives an integral. (after a sub.
→ use the correct table integral)

Approximation left, right, mid, trap, simp.

- ① give you data. → use approx tech.

ex



Simpson's Area $\approx \left(0 + 4(2) + 2(4) + \dots + 0 \right) \cdot 30$ Do not simplify

3 word problems

- ① Arc length (could be improper)
(could be just a "setup do not integrate")

② Area and/or Volume of revolution

(could be improper)

(could be a "setup, do not integrate")

③ either force of fluid on a plate rect, trian
or center of mass or circle

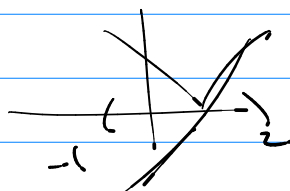
ex) Setup arc length of $f(x) = x \sin(x)$

from $x=0$ to $x=\pi/2$

$$L = \int_a^b \sqrt{1 + (f')^2} dx$$

$$f' = \sin x + x \cos x$$

$$L = \int_0^{\pi/2} \sqrt{1 + (\sin x + x \cos x)^2} dx$$



$|x-1|$ $(a^2 + 2ab + b^2)$
 $\sqrt{(x-1)^2} = |x-1|$ $\sqrt{x^2} = |x|$