

5.2, cont.

Integrals on a Calculator

$$\int_a^b f(x) dx = \text{fnINT}(f(x), x, a, b)$$

↑
MATH: 9

Ex: Evaluate the following intervals numerically.

a. $\int_{-1}^2 x \sin x \, dx$ **approx. 2.04** b. $\int_0^1 \frac{4}{1+x^2} \, dx$ **approx. 3.14**

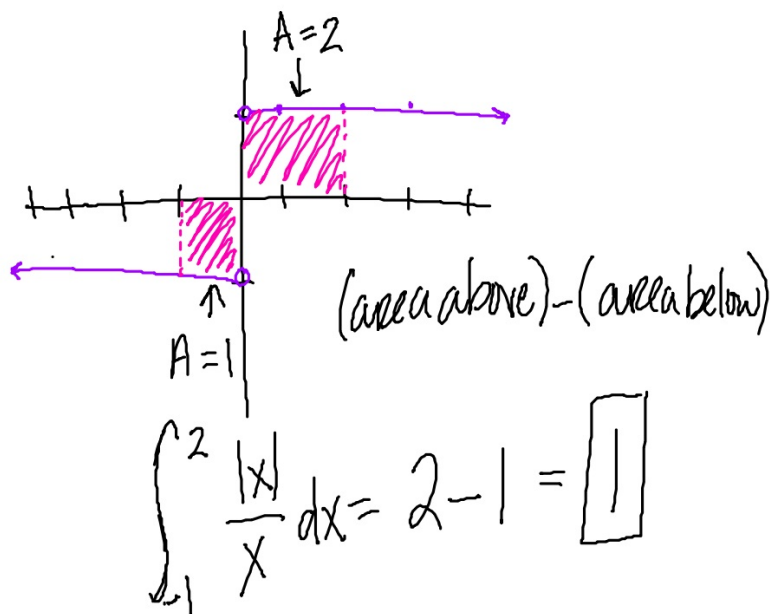
c. $\int_0^5 e^{-x^2} \, dx$ **approx. .89**

Integrating a Discontinuous Function

Remember that all continuous functions are integrable. But some functions with discontinuities are also integrable. For example, a bounded function that has a finite number of points of discontinuity on an interval $[a, b]$ will still be integrable on the interval if it is continuous everywhere else.

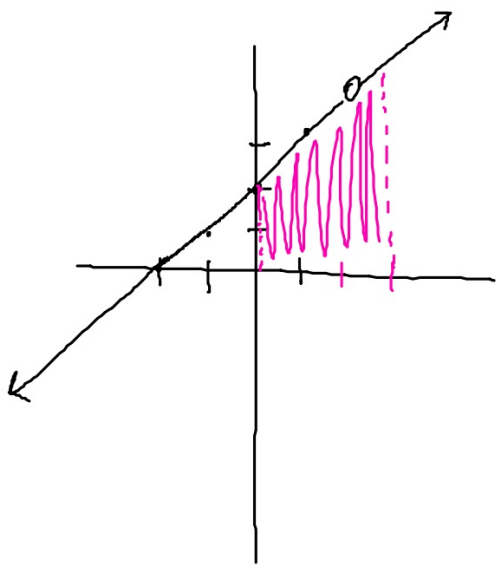
Ex: Find $\int_{-1}^2 \frac{|x|}{x} dx$

Discontinuity @ $x=0$



Ex: Find $\int_0^3 \frac{x^2 - 4}{x - 2} dx = \int_0^3 \frac{(x+2)(\cancel{x-2})}{\cancel{x-2}} dx = \int_0^3 (x+2) dx$

Discontinuity @ $x=2$
(hole)



$$\int_0^3 \frac{x^2 - 4}{x - 2} dx = \frac{3}{2}(2+5) = \frac{3}{2}(7) = \frac{21}{2}$$

$$= 10.5$$

Assignment
p. 282 #29-45 odd

Don't forget - Last day for
book check tomorrow!!