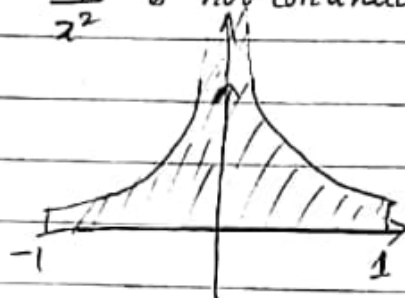


Warning

To apply FTC, it is crucial that f is continuous.

e.g. $\int_{-1}^1 \frac{1}{x^2} dx$

$\frac{1}{x^2}$ is not continuous at 0.



However, if we apply

FTC, then

Area is extremely big.

$$\int_{-1}^1 \frac{1}{x^2} dx = \left(-\frac{1}{x} \right) \Big|_{-1}^1 = (-1) - (-(-1)) = -1 - 1 = -2$$

Negative Area!
Absurd.

State. T/F Let $F(x) = -\frac{1}{x-2}$, and $f(x) = \frac{1}{(x-2)^2}$. Since $F'(x) = f(x)$,

by FTC we have $\int_1^3 f(x) dx = F(3) - F(1) = -2$.

Ans:

False. f is not continuous at $x = 2$.
(Also, negative area!)