

Integrate Absolute Value

p. 366 - 373 (5.3)

66

1. Find zeros by setting the inside of the absolute bars = 0.
2. Graph $f(x)$ using the limits as the boundaries.
3. Find the area from the lower limit to the upper limit.

Application of Integrating Absolute Value:

The **Total Distance** traveled of an object over $[a, b]$ is $\int_a^b |v(t)| dt$.

Evaluate:

**1. $\int_1^4 |x - 3| dx$

2. $\int_0^2 |2x - 1| dx$

**calc.(FR) 3. An object moves along the x -axis with a velocity of $v(t) = \sin\left(\frac{\pi}{3}t\right)$ for time $t \geq 0$. What is the total distance traveled by the object over the time interval $0 \leq t \leq 4$?