1. If an automobile starts at rest, what constant acceleration will enable it to travel 500 feet in 10 seconds? (Do not use the equations of motion from physics, but rather work through the antiderivatives.)

2. Evaluate the integral

\[ \int_0^{\pi} |2 \cos x| \, dx. \]

(Hint: Recall that you can write absolute value functions as piecewise defined functions.)