

YOUR NAME: _____

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Read each problem **very carefully** before starting to solve it. Each problem is worth 10 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Calculate the integral $\int \frac{x+5}{\sqrt{4-x^2}} dx$.

2. Compute the area of the region enclosed by the graphs of $x = y^2 - 10y$ and $x + y = 0$.

3. A ball is thrown upward to the air with initial velocity 20 m/s has height $h(t) = 20t - 10t^2$ at time t in seconds. Find the average speed over the time interval between the ball's release and its return to the ground.

4. Find the volume of the solid resulting by revolving the graph of $f(x) = \sqrt{\cos x \sin x}$ on $[0, \frac{\pi}{2}]$ around the x -axis.

5. Find the volume of the solid resulting by rotating the shaded region around the line $x = 4$.

