1. **SET UP** the definite integral to find the volume of the solid generated by rotating the region bounded by the graphs of \( y = 2x - x^2 \) and \( y = x^2 \) about the x-axis using vertical rectangles.

\[
V = \pi \int_0^1 \left( (2x-x^2)^2 - (x^2)^2 \right) \, dx
\]

**WASHER**

\[
R = 2x - x^2 \\
r = x^2
\]

limits:

\[
2x-x^2 = x^2 \\
2x-2x^2 = 0 \\
2x(1-x) = 0 \\
x = 0, 1
\]

2. **SET UP** the definite integral to find the volume of the solid generated by rotating the region bounded by the graphs of \( y = \frac{1}{x^2} \), \( x = 1 \), \( x = 2 \), and \( y = 0 \) about the line \( x = 4 \). Indicate your choice of method by **circling** one of the following:

- **DISK**
- **WASHER**
- **SHELL**

\[
P = 4-x \\
L = \frac{1}{x^2} \\
V = 2\pi \int_1^2 \left( 4-x \right) \left( \frac{1}{x^2} \right) \, dx
\]

Note:

*Washer possible: two integrals*

*see next page*
1. **SET UP** the definite integral to find the volume of the solid generated by rotating the region bounded by the graphs of \( y = 2x - x^2 \) and \( y = x^2 \) about the \( x \)-axis using vertical rectangles.

\[
\pi \int_0^1 \left( (2x - x^2)^2 - (x^2)^2 \right) \, dy
\]

\[
+ \pi \int_{\frac{1}{4}}^{1} \left( (2 - (4 - \frac{1}{\sqrt{y}})^2) - (\frac{1}{4})^2 \right) \, dy
\]

2. **SET UP** the definite integral to find the volume of the solid generated by rotating the region bounded by the graphs of \( y = \frac{1}{x^2} \), \( x = 1 \), \( x = 2 \), and \( y = 0 \) about the line \( x = 4 \).

Indicate your choice of method by circling one of the following:

- **DISK**
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