(1) In class, we found that the area of the region above the x-axis and the line with equation $y = -3x + 6$, and below the parabola with equation $y = 4x - x^2$, can be expressed as a double integral with the x integral outermost:

$$\int_1^4 \boxed{\text{some } y \text{ integral}} \, \mathrm{d}x.$$

If we wanted to express it as a double integral with the y integral outermost, then what would the limits of the outer integral be?

$$\int_{\boxed{?}}^{\boxed{?}} \boxed{\text{some } x \text{ integral}} \, \mathrm{d}y.$$

(You need not give the inner integral.)

- **Ten** book problems: #14.1.25, 26, 27, 30, 38; #14.2.8, 11, 12, 21, 22.