

We can also review problems from WS4 on Tuesday.

Selected problems: 1b, 2b, 4a
Student suggestions:

1b: Evaluate $\iint_R f(x,y) dA$ for $f(x,y) = 2x - 4y^3$, $R = [4, 5] \times [0, 3]$.

Rectangular integral, just plug in the bounds & evaluate. $4 \leq x \leq 5$, $0 \leq y \leq 3$

$$\text{ans} = \int_0^3 \left(\int_4^5 (2x - 4y^3) dx \right) dy = \quad \text{— } 4y^3 \text{ is a constant w.r.t to } x$$

$$\int_0^3 \left[x^2 - 4y^3 x \right]_4^5 dy = \int_0^3 \left[(5^2 - 20y^3) - (4^2 - 16y^3) \right] dy$$

$$= \int_0^3 (9 - 4y^3) dy = \left(9y - y^4 \right) \Big|_0^3 =$$

$$9 \cdot 3 - 3^4 = 27 - 81 = \boxed{-54}$$

Tuesday DW4 problems: