**This Week**    Fake Q7 Thursday Dec 6. Covers interchanging integrals.

**Book**

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**Final Dates**

- 10am Monday Dec 17, 9-9:50 ART 2.102
- 11am Friday Dec 14 9-9:50 WEL 2.122

10am class may take the 11 am final: you must email me by Wed Dec 12
State your name in body of email.
To change your mind, you must email me by Thursday Dec 13.

**Final Rules**

1) Final is 50 min: get there early to start on time.
2) You can use the usual cheat sheet, but no calculators.
3) You need to bring a PHOTO ID to the exam.
4) **10 am class**: Your grades will be posted Monday evening. If you have questions, you must contact me Monday; I leave the country Tuesday.
5) **11 am class**: Your grades will be posted Saturday morning. I leave the country Tuesday, so if you want to see me, you need to do it Monday in office hours.

**Final Topics**

1) Partial derivatives and chain rules
2) Interchanging integrals
3) Changing integrals to polar co-ordinates
4) Surface Area

**Office Hours**

- Monday Dec 10: 10:00-11:30 Instead of class
- Wednesday Dec 12: 10:00-11:30
- Thursday Dec 14 10:00-11:30
- Monday Dec 17 10:00-11:30

**Integral Practice**

1) Compute the volume under the surface $z = x^2 + y^2$, above the region $D$,
   
   $D = \{(x, y) \mid x^2 + y^2 \leq 1; \ y \leq 0\}$.

   a) Sketch the region $D$.
   b) Write $\int \int_D f \ dA$ as a type one integral.
   c) Write $\int \int_D f \ dA$ as a type two integral.
   d) Compute the volume under the surface $z = x^2 + y^2$, above $D$.

12) Let $D$ be the region bounded by the curves $y = 1; \ y = -1$ and $x = -1; \ x = -y^2$.
   a) Sketch the region
   b) Write $\int \int_D f \ dA$ as a type one integral.
   c) Write $\int \int_D f \ dA$ as a type two integral.
   d) Compute $\int \int_D x \ dx \ dy$