14-3 Area by Double Integration

師大工教一

Areas of Bounded Regions in the Plane

Definition The **area** of a closed, bounded plane region R is $A = \iint_R dA$.

Ex1(p811) Find the area of the region R bounded by $y = x$ and $y = x^2$ in the first quadrant.

Ex2(p812) Find the area of the region R bounded by the parabola $y = x^2$ and the line $y = x + 2$.

Average Value

Average value of f over $R = \dfrac{1}{\text{area of } R}\iint_R f\,dA$.

Ex4(p813) Find the average value of $f(x,y) = x\cos(xy)$ over the rectangle

$R: 0 \le x \le \pi, 0 \le y \le 1.$

HW14-3

- **HW:3,7,15,17,19**