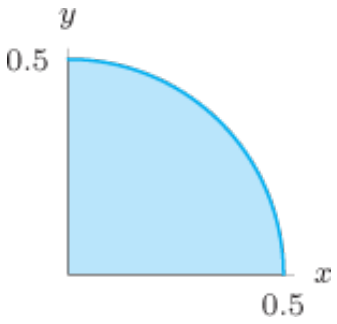
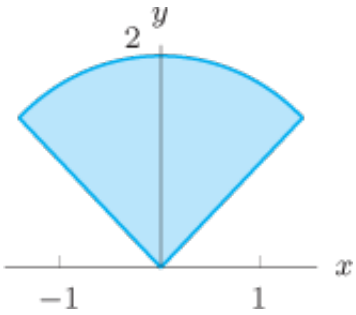
16.4 Double Integrals in Polar Coordinates

Name: Date:

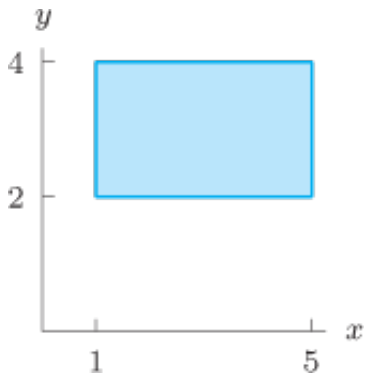
P 1. For the region R below, write $\int_R f\ dA$ as an interated integral in polar coordinates.



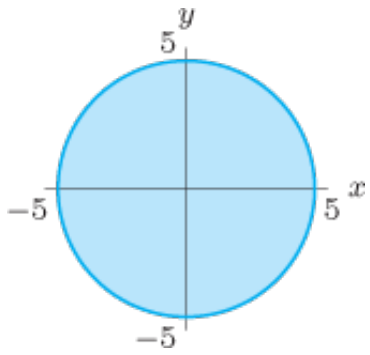
P 3. For the region R below, write $\int_R f\ dA$ as an interated integral in polar coordinates.



P 5. Choose rectangular or polar coordinates to set up an iterated integral of an arbitrary function $f(x, y)$ over the region.



P 6. Choose rectangular or polar coordinates to set up an iterated integral of an arbitrary function $f(x, y)$ over the region.



P 9. Sketch the region of integration.

$$\int_0^4 \int_{-\pi/2}^{\pi/2} f(r,\theta) r \, d\theta \, dr$$

P 11. Sketch the region of integration.

$$\int_0^{2\pi} \int_1^2 f(r,\theta) r \, d\theta \, dr$$

P 13. Sketch the region of integration.

$$\int_0^{\pi/4} \int_0^{1/\cos\theta} f(r,\theta) r \; d\theta \; dr$$

P 19. Evaluate

$$\int_{-1}^{0} \int_{-\sqrt{1-x^2}}^{\sqrt{1-x^2}} x \; dy \; dx.$$

P 24. Evaluate

$$\int_0^{\pi/6} \int_0^{2/\cos\theta} r \, dr \, d\theta.$$