Mini Problems 17

1. Compute

$$\int\int_D \sin(x^2+y^2)\,dA$$

where D is the region bounded by the x-axis, the line $y = x/\sqrt{3}$ and the curve $y = \sqrt{1-x^2}$.

2. Find the area inside $r = 1 - \cos(\theta)$ and outside the circle $r = 1$.

3. Evaluate

$$\int\int_D \frac{1}{1+x^2y^2}\,dA$$

where D is the region bounded by $y = 1$, $y = 2$, $xy = 1$ and $xy = 4$.

4. Compute

$$\int\int_D \cos\left(\frac{x-2y}{x+2y}\right)\,dA$$

where D is the region bounded by the coordinate axes and the line $x + 2y = 1$.