

1. $\frac{\pi}{3}$

2. $\mathcal{A}(D) = 17$

3. $\frac{\partial(x,y)}{\partial(u,v)} = \frac{1}{v}$

4. $\frac{15}{8}$

5. -30

6. 1

7. a) V b) F c) F d) V

8. a) $\mathcal{A}(D) = \frac{15\pi}{2}$

b) $(b_x, b_y) = \left(-\frac{14\sqrt{2}}{5\pi}, \frac{14\sqrt{2}}{5\pi}\right)$

9. $\iint_D \frac{1}{1+x^2+y^2} dx dy = \frac{\pi}{8} \ln(5)$

$$\iint_D xy dx dy = 1$$

10. $\frac{3\pi a^2}{2}$

11. $\frac{\partial(x,y)}{\partial(u,v)} = u$

12. $\frac{7}{4}(e^3 - e)$