7–12 Use Green's Theorem to evaluate the line integral along the given positively oriented curve.

7. $\int_C e^y\,dx + 2xe^y\,dy$,
C is the square with sides $x = 0$, $x = 1$, $y = 0$, and $y = 1$

8. $\int_C x^2y^2\,dx + 4xy^3\,dy$,
C is the triangle with vertices (0, 0), (1, 3), and (0, 3)

9. $\int_C \left(y + e^{\sqrt{x}}\right)dx + (2x + \cos y^2)\,dy$,
C is the boundary of the region enclosed by the parabolas $y = x^2$ and $x = y^2$

10. $\int_C xe^{-2x}\,dx + (x^4 + 2x^2y^2)\,dy$,
C is the boundary of the region between the circles $x^2 + y^2 = 1$ and $x^2 + y^2 = 4$

11. $\int_C y^3\,dx - x^3\,dy$, C is the circle $x^2 + y^2 = 4$

12. $\int_C \sin y\,dx + x\cos y\,dy$, C is the ellipse $x^2 + xy + y^2 = 1$

13–16 ▥ Use Green's Theorem to evaluate $\int_C \mathbf{F} \cdot d\mathbf{r}$. (Check the orientation of the curve before applying the theorem.)

13. $\mathbf{F}(x, y) = \langle \sqrt{x} + y^3, x^2 + \sqrt{y} \rangle$,
C consists of the arc of the curve $y = \sin x$ from $(0, 0)$ to $(\pi, 0)$ and the line segment from $(\pi, 0)$ to $(0, 0)$

14. $\mathbf{F}(x, y) = \langle y^2 \cos x, x^2 + 2y \sin x \rangle$,
C is the triangle from $(0, 0)$ to $(2, 6)$ to $(2, 0)$ to $(0, 0)$

15. $\mathbf{F}(x, y) = \langle e^x + x^2 y, e^y - xy^2 \rangle$,
C is the circle $x^2 + y^2 = 25$ oriented clockwise

16. $\mathbf{F}(x, y) = \langle y - \ln(x^2 + y^2), 2\tan^{-1}(y/x) \rangle$, C is the circle $(x-2)^2 + (y-3)^2 = 1$ oriented counterclockwise

17. Use Green's Theorem to find the work done by the force $\mathbf{F}(x, y) = x(x + y)\,\mathbf{i} + xy^2\,\mathbf{j}$ in moving a particle from the origin along the x-axis to $(1, 0)$, then along the line segment to $(0, 1)$, and then back to the origin along the y-axis.