14. Find $\displaystyle\iint_R e^{x^2+y^2}\,dA$, where R is the region inside $x^2+y^2=9$.

15. Consider the solid which is bounded by $2x+3y+4z=12$ and the three coordinate planes. Find the volume of the solid. Set up the integral, **but do NOT compute the integral.**

16. Find the volume of the region between $z=16-x^2-y^2$ and the xy plane.

17. Find $\displaystyle\int_C (2x+3y)dx+(4x+5y)dy$ where C is the triangle with vertices $(1,1)$, $(4,1)$, and $(2,3)$. The curve is to be traveled in a counter clockwise manner starting and ending at $(1,1)$.

18. Find $\displaystyle\int_C y\,dx+x^2dy$ where C is the line segment from $(-1,2)$ to $(1,1)$.

19. Find a function $f(x,y)$ with $\vec{\nabla} f=(y^2+2xy)\,\vec{\boldsymbol{i}}+(x^2+2xy+3y^2)\,\vec{\boldsymbol{j}}$.