Worksheet for November 19

Problems marked with an asterisk are to be placed in your math diary.

(1.*) Calculate $\int\int_S z^2\ dS$, for S that portion of the sphere of radius 1 centered at the origin that lies in the first octant.

(2.*) Without using a paramterization, write down the answer to $\int\int_S x^2+y^2+z^2\ dS$, where S is the sphere of radius R centered at the origin. Then check you answer using a paramterization.

(3.*) Let S be the closed cylinder of radius 3, height 15 whose base sits on the xy-plane. Calculate $\int\int_S z\ dS$.