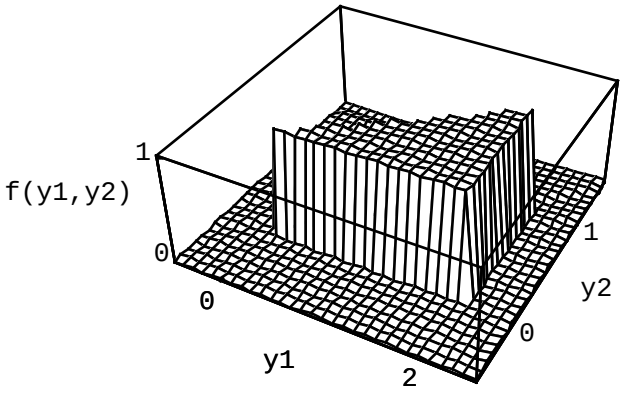
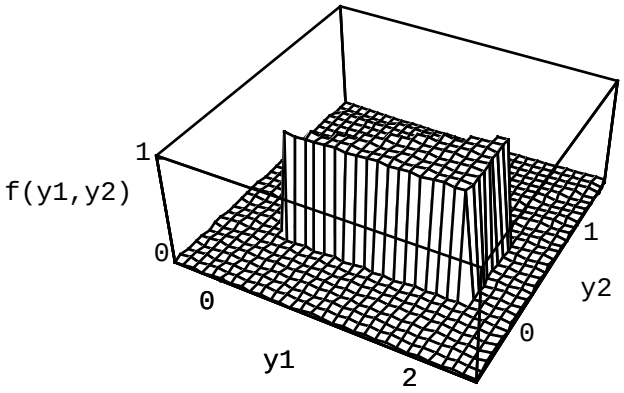
Q5.6

a Since the base is a triangle with area (1/2)(2)(1)=1, the height k must also be 1, in order to have the total "volume" be unity.

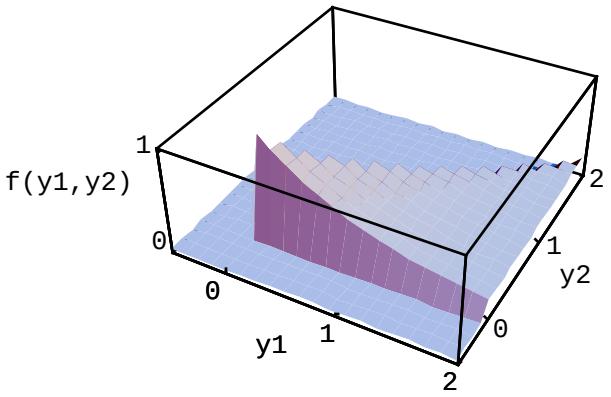


b $P(Y_2 < (1/3)Y_1)$ is the probability mass over this region... clearly 2/3 of the total mass.



Q5.9

(y_1,y_2) space beyond (2,2) not shown



a-c Integrate $f(y_1,y_2)$ over regions indicated

Q5.11

$P(Y_1 < Y_2)$ is the 1/2 cyclindral mass on "the far side" of the divider.