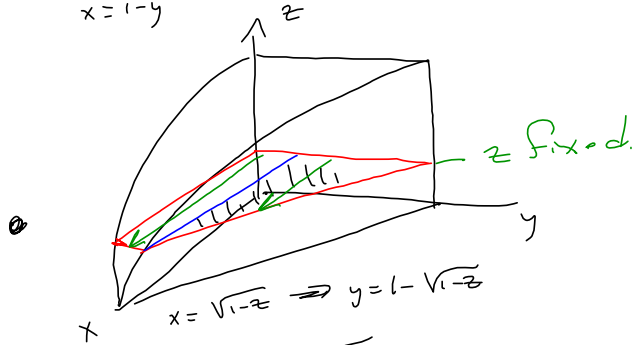
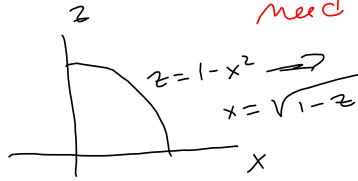
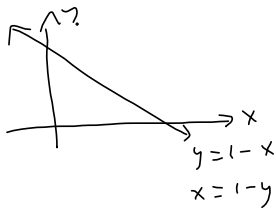


St 15.6
#34

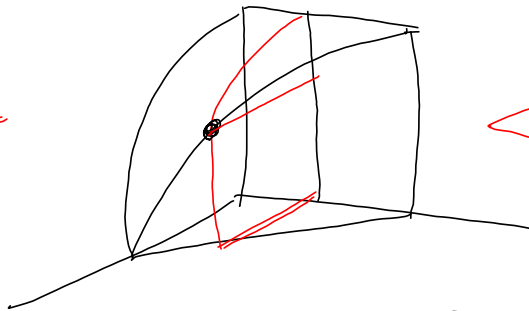
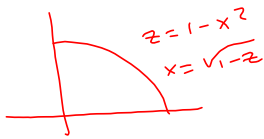
$$\int_0^1 \int_0^{1-x^2} \int_0^{1-x} f(x,y,z) dy dz dx$$

why does $\iiint f dx dy dz$
need 2 triple integrals?



$$dx dy dz : \int_0^1 \int_0^{1-\sqrt{1-z}} \int_0^{\sqrt{1-z}} f dx dy dz + \int_0^1 \int_{1-\sqrt{1-z}}^1 \int_0^{1-y} f dx dy dz$$

$dx dz dy$



$$\int_0^1 \int_0^{1-(1-y)^2} \int_0^{1-y} dx dz dy + \int_0^1 \int_{1-(1-y)^2}^1 \int_0^{\sqrt{1-z}} dx dz dy$$

$$x = 1-y$$

$$z = 1-x^2 = 1-(1-y)^2$$

$dx dz dy$ - another toughie! Type 2 over Type 1

$$\int_0^1 \int_0^{1-(y-1)^2} \int_0^{1-y} 1 dx dz dy + \int_0^1 \int_{1-(y-1)^2}^1 \int_0^{\text{sqrt}(1-z)} 1 dx dz dy$$

$\frac{5}{12}$