A fair coin is tossed four times. Let X denote the number of heads on the first toss, Y the number of heads on the first two tosses, and let Z denote the total number of heads in four tosses.

1) Find $f_{XYZ}(0,1,2)$. **1 point**

For 0 heads on first toss,
1 head on first 2 toss and
2 total heads

$\Rightarrow$ Possible combinations are = THHT , THTH

$\Rightarrow f_{XYZ}(0,1,2) = 2\left(\frac{1}{16}\right) = \frac{1}{8}$

Q) Find $f_{XYZ}(0,1,4)$

$\Rightarrow$ Possible combinations = None

Total toss = 4
if 0 heads on first toss
$\Rightarrow$ it must be tails, but total heads is 4
which is contradicting

Q) Find $f_{XYZ}(1,1,3)$

$\Rightarrow$ Possible combinations = HTHH

$\Rightarrow f_{XYZ}(1,1,3) = \frac{1}{16}$