1.4 a) Wahrscheinlichkeiten:

$p(0,0) = \frac{1}{5} = \frac{5}{30}$

$p(0,1) = \frac{3}{30} = \frac{1}{10}$

$p(1,0) = \frac{7}{30}$

$p(1,1) = \frac{14}{30} = \frac{7}{15}$

$$H_{\Sigma,p}(m) = \sum_{m} -p(m) \log(p(m))$$

$$= -\frac{1}{5} \cdot \log\left(\frac{1}{5}\right) + \left(-\frac{1}{10} \cdot \log\left(\frac{1}{10}\right)\right) + \left(-\frac{7}{30} \cdot \log\left(\frac{7}{30}\right)\right) + \left(-\frac{7}{15} \cdot \log\left(\frac{7}{15}\right)\right)$$

$\approx 1{,}8$ Erwarteter Informationsgewinn

b)