

NAME _____

10 October 2008

MATH 156.6 — QUIZ IV

I have a fair die (a normal one with six faces, labeled 1 through 6) which I will roll fairly. I also have a fair coin which I will flip fairly... but it doesn't have a Head and a Tail, instead its faces are labelled 0 and 1. I roll the die and flip the coin, **independently**.

(a) What is the probability of the event "I got a 1 on the die"? Why?

(b) What is the probability of the event "I got a 0 on the coin"? Why?

(c) What is the probability of the event "I got a 1 on the die *and* I got a 0 on the coin"? Why?

Now consider also the random variable:

$$X = \text{number showing on die plus number showing on coin} .$$

(d) What is the probability of the event " $X = 1$ "? Why?

(e) What is the probability of the event " $X = 2$ "? Why?

[Hint: this is a more complicated event than the previous one.]

Extra credit: Write down on the back of this page the complete distribution of the random variable X – remember that this is a table of all of the possible values of X and their respective probabilities.