

9. This problem has to do with odds.

(a) On average, what fraction of people with an odds of 0.37 of defaulting on their credit card payment will in fact default?

(b) Suppose that an individual has a 16% chance of defaulting on her credit card payment. What are the odds that she will default?

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(a) Let $P(\text{default}) = x$

$$\Rightarrow 0.37 = \frac{x}{1-x}$$

$$\Rightarrow 0.37 - 0.37x = x$$

$$\Rightarrow 1.37x = 0.37$$

$$\Rightarrow x = \frac{0.37}{1.37} \doteq 0.2701 = 27.01\%$$

(b) $P(\text{default}) = 0.16$

$$\Rightarrow \text{the odds} = \frac{0.16}{1-0.16}$$

$$= \frac{0.16}{0.84}$$

$$\doteq 0.1905$$