Solution to 12.13.3.82

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Question: Two dice are thrown. If it is known that sum of the numbers on the dice was less than 6,the probability of getting a sum 3, is

A) $\frac{1}{18}$

B) $\frac{5}{18}$

C) $\frac{1}{5}$

D) $\frac{2}{5}$

Solution: Let X be a random variable such that,

Parameter	Value	Description
X	0	sum less than 6
	1	sum equals 3

$$\Pr(X=0) = \frac{10}{36} \tag{1}$$

$$\Pr(X=1) = \frac{2}{36} \tag{2}$$

We know,

$$\Pr(X=1|X=0) = \frac{\Pr((X=0)(X=1))}{\Pr(X=0)} \tag{3}$$

$$= \frac{\frac{2}{36}}{\frac{10}{36}} \tag{4}$$

$$= \frac{2}{10} \tag{5}$$

$$= \frac{1}{5} \tag{6}$$