

January 29st

Prime numbers on a dice are 2, 3 and 5

so $P(\text{Prime}) = 1/2$ for each throw

Rolling 4 dice, to roll a prime number of prime numbers, we need either

2 primes or 3 primes

If P represents getting a prime, and X represents not getting a prime

There are $4!/(2!2!) = 6$ ways of ordering 2 Ps and 2 Xs

PPXX PXXP XPXP
PXPX XPPX XXPP each has probability $(\frac{1}{2})^4 = 1/16$

So $P(2 \text{ primes}) = 6/16$

There are $4!/(3!1!) = 4$ ways of ordering 3Ps and 1X

PPPX PPXP
PXPP XPPP each has probability $(\frac{1}{2})^4 = 1/16$

So $P(3 \text{ primes}) = 4/16$

Therefore $P(\text{getting a prime number of primes}) = 6/16 + 4/16 = 10/16 = \mathbf{5/8}$

Therefore the probability of getting