Hw 10

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① number of way to have a straight

$C(10,1) = 10$ ways!

number of card kinds

$C(4,1) = 4$

therefore 4 way to make 5 choices

by product rule $10 \times 4^5 = \underline{10240}$

we have 10240 different hands containing a straight

now there are $C(52,5) = \underline{2598960}$ different hands.

therefore the poop of having a hand containing a straight is $\frac{10240}{2598960}$

(2)

With 2 dice

$9 = (3+6), (4+5), (5+4), (6+3) \Rightarrow$ 4 ways

So prob is $\frac{4}{6*6} = \frac{4}{36} = \boxed{\frac{1}{9}} = 0.111$

With 3 dice

$9 = 1+8, 8 = 2+6 = 3+5 = 4+4 = 5+3 = 6+2 \Rightarrow$ 5 ways

$9 = 2+7, 7 = 1+6 = 2+5 = 3+4 = 4+3 = 5+2 = 6+1 \Rightarrow$ 6 ways

$9 = 3+6, 6 = 1+5 = 2+4 = 3+3 = 4+2 = 5+1 \Rightarrow$ 5 way

$9 = 4+5, 5 = 1+4 = 2+3 = 3+2 = 4+1 \Rightarrow$ 4 ways

$9 = 5+4, 4 = 1+3 = 2+2 = 3+1 \Rightarrow$ 3 ways

$9 = 6+3, 3 \Rightarrow 1+2 = 2+1 \Rightarrow$ 2 way

25 way

25 way to get a total of 9

So prob is $\frac{25}{6*6*6} = \boxed{\frac{25}{216}} = 0.116$

Since

$0.111 < 0.116$

Rolling with 3 dice is more likely to get 9