2c) $\boxed{\text{num}}$bers

e$\boxed{\text{numb}}$sr

□ers

Grea: - - - - - -

3b) Full house:

(3 cards alike) (2 cards alike)

$C(4,3)$ $C(4,2)$

$P(13,2)$ → type of card to use for 3-set and 2-set.

$P(13,2)\cdot C(4,3)\cdot C(4,2) = 3{,}744$

3b) Why $P(13,2)$?

K's 5's

(__ __ __)(__ __)

① $P(13,2)$

② $C(4,3)$

③ $C(4,2)$

4a) Why 2^7 not 7^2.

c n c ... c c c

$2\cdot 2\cdot 2\cdots \_\_ \_\_ \cdot 2$

Q1 Q2 ... ... Q7

4b) $P(\geq 5 \text{ correct}) = P(5 \text{ correct OR } 6 \text{ correct OR } 7 \text{ correct})$

$= P(5\text{ correct}) + P(6\text{ correct}) + P(7\text{ correct})$

$= \frac{C(7,5)\cdot C(2,2)}{128} + \frac{C(7,6)}{128} + \frac{C(7,7)}{128}$

5) Why does order matter?

→ it matters who gets what job.

6b) 5 stats
6 econ

Choose 4.

$$P\left(\begin{smallmatrix}\text{at least}\\ 1\text{ stat}\end{smallmatrix}\right) = 1 - P(\text{no stat})$$

$$= 1 - \frac{C(6,4)}{C(11,4)} \approx 95.5\%$$

9)

9. In a carnival game, you roll a pair of dice and add the values together. If the sum of the dice is anything **except** {5, 6, 7, 8, or 9}, you win \$1. If one of those sums comes up, you must pay \$1. Is this game fair, or does it favor either you or the carnival? Support your answer with appropriate calculations.

Refer to the table in #10 to construct the probability distribution below:

Sum	2	3	4	5	6	7	8	9	10	11	12
Prob	1/36	2/36	3/36	4/36	5/36	6/36	5/36	4/36	3/36	2/36	1/36
Win\$1?	Y	Y	Y	-	-	-	-	-	Y	Y	Y

	1	2	…	6
1	2	3	4	
2	3	4		
⋮	4			
6				

$$E = (\$1)(P(\text{win } \$1)) + (-\$1)(P(\text{not win } \$1))$$

$$= (\$1)\left(\frac{12}{36}\right) + (-\$1)(24/36)$$

$$= \$.3\bar{3} - \$.6\bar{6} = -\$0.3\bar{3}$$

12(c)(i)

It's called the sample space:

S = { (0,2), (0,3), (0,4), (0,5),
(1,2), (1,3), (1,4), (1,5),
(2,2), (2,3), (2,4), (2,5),
(3,2), (3,3), (3,4), (3,5)}

$$P(A \text{ or } B) = P(A) + P(B) - P(A \cap B)$$

$$= \frac{8}{16} + \frac{3}{16} - \frac{0}{16}$$

$$P(A \text{ and } B) = P(A) \cdot P(B|A)$$

$$= \frac{8}{16} \cdot \frac{0}{8} = 0.$$

13b)(i)

$$P\left(\begin{matrix}\text{at least}\\ \text{1 head}\end{matrix}\right) = 100\% - P\left(\begin{matrix}\text{no}\\ \text{heads}\end{matrix}\right)$$

$$= 1 - \frac{1}{2^6}$$

$$= \frac{63}{64}.$$

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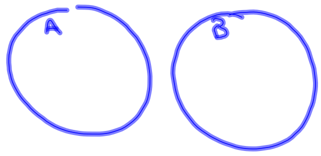
13) $P(\text{2 Heads}) = \boxed{\frac{C(6,2)}{2^6}} \cdot \underline{C(4,4)}$

T H T H T T

Mutually exclusive: $A \cap B = \emptyset$



Independent: $P(B) = P(B|A)$