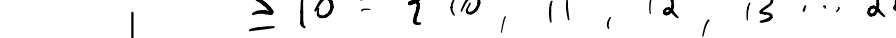
permutation order matters password

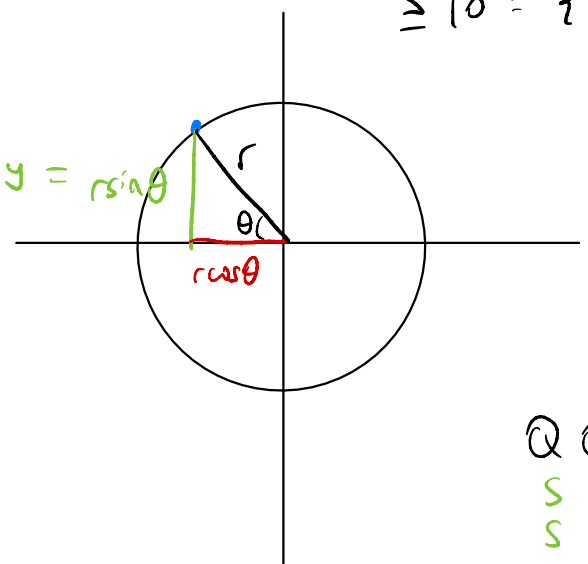
combination order does not matter ice cream bowl

5-22-22 English 67F



$\geq 10 = \{10, 11, 12, 13 \dots 20\}$

questions correct



$\sin\theta = \frac{y}{r}$

$y = r\sin\theta$

Q Q Q Q Q Q Q Q Q Q

S S S S S F F F F F

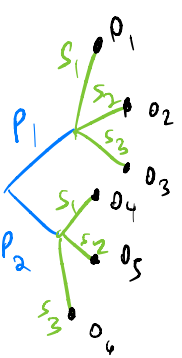
S S S S F S F F F F

1 2 3 4 5 6 7 8 9 10

Success $p = 1/6$

Fail $1-p = 5/6$

Outfit 2 pants 3 shirts



2 x 3

exactly 10 questions right

$\binom{20}{10}$ $\left(\frac{1}{6}\right)^{10}$ $\left(\frac{5}{6}\right)^{10}$

orderings correct incorrect

combination $\binom{10}{5}$ from 10 objects grab 5 (order unimportant)

$\geq 10 = \{10, 11, 12, 13 \cdots 20\}$

questions correct

$$\binom{20}{10}\left(\frac{1}{6}\right)^{10}\left(\frac{5}{6}\right)^{10} + \binom{20}{11}\left(\frac{1}{6}\right)^{11}\left(\frac{5}{6}\right)^{9}$$

10 correct

11 correct

$$\cdots \quad \binom{20}{20}\left(\frac{1}{6}\right)^{20}\left(\frac{5}{6}\right)^{0}$$

20 correct

$$e^{ix} = \cos(x) + i\sin(x)$$

$$e^{i\pi} = \cos(\pi) + i\sin(\pi)$$

$$= -1 + i(0)$$

$$= -1$$