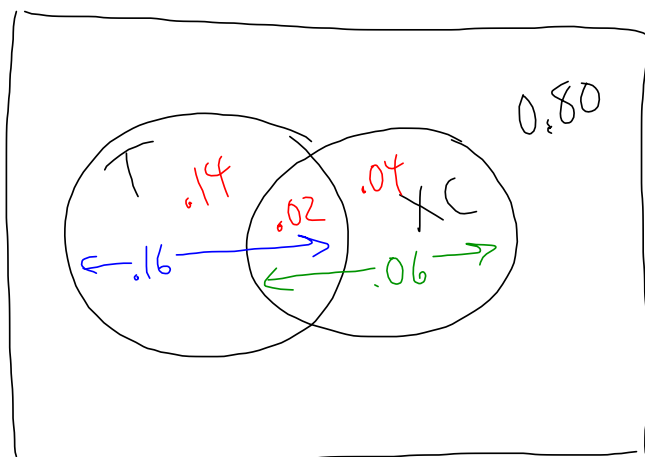


Track is A

XC is B

$$P(A \cup B) = 1 - .8 = .20$$

$$.20 = .16 + .06 - P(A \cap B)$$



$$P(C|T) = \frac{P(C \cap T)}{P(T)}$$

Urn R, G, Y

How many ways can we get
2 yellow, 3 red, 3 green if we're
drawing 8?

$$\frac{8!}{2!3!3!}$$

$$f(x) = P(X = x) \rightarrow = P(X \leq x)$$

$$F(x) = \sum_{t \leq x} f(t) \quad F(4) = \dots + f(2) + f(3) + f(4)$$

$$x \in \text{Ran}(X)$$

$$X: S \rightarrow \mathbb{R}$$

$$\text{Ran}(X) = 2, 3, 4, \dots, 11, 12$$

$$P(X=7) = f(7) = F(7) - F(6)$$

$x :$	2	3	4	5	6	7	...
$f(x) :$	$\frac{1}{36}$	$\frac{2}{36}$	$\frac{3}{36}$	$\frac{4}{36}$	$\frac{5}{36}$	$\frac{6}{36}$	

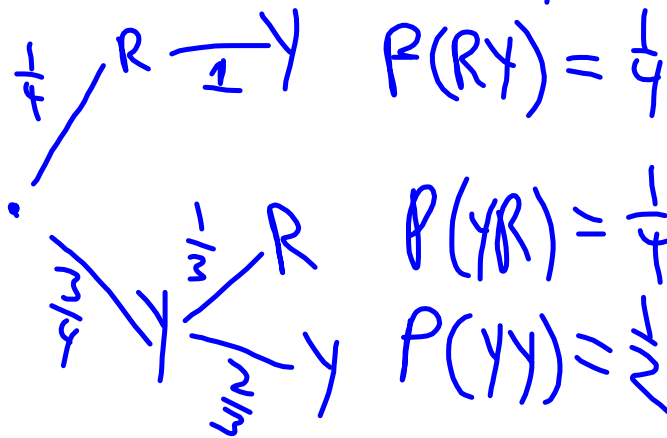
$$\begin{aligned}P(5 \leq X \leq 9) &= f(5) + f(6) + f(7) + f(8) + f(9) \\ &= F(9) - F(4)\end{aligned}$$

$$P(X \leq 4) = f(2) + f(3) + f(4) = F(4)$$

$$\begin{aligned}P(X \geq 5) &= f(5) + f(6) + \dots + f(12) \\ &= 1 - P(X \leq 4) = 1 - F(4)\end{aligned}$$

Urn 1 red, 3 yellow.

Draw 2 marbles w/o replacement.



$X = \# \text{ reds}$

① $\text{Ran}(X) = \{0, 1\}$

$x:$	0	1
$f(x):$	$\frac{1}{2}$	$\frac{1}{2}$

$$F(x) = \begin{cases} 0 & \text{if } x < 0 \\ \frac{1}{2} & \text{if } 0 \leq x < 1 \\ 1 & \text{if } x \geq 1 \end{cases}$$

