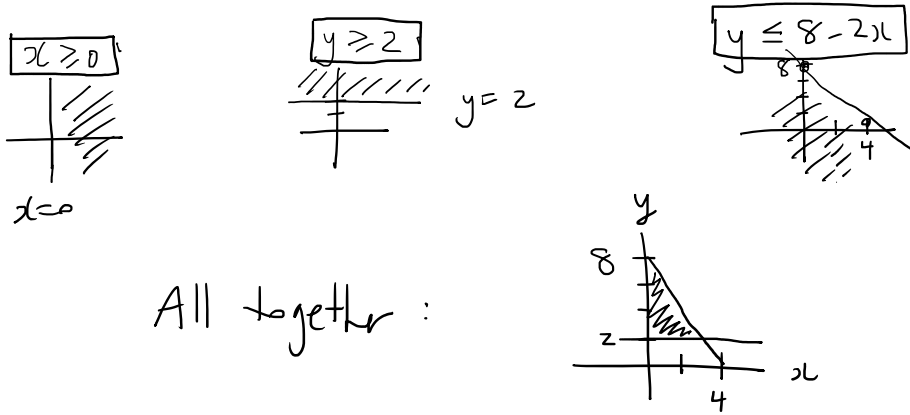


①



All together :

②

$$n(s) = 10^5$$

$$n(E) = \frac{9 \times 8 \times 7 \times 6 \times 5}{1-9} \quad \text{or} \quad P(9,5) = 15120$$

$$Pr(E) = \frac{15120}{10^5} \approx 0.15$$

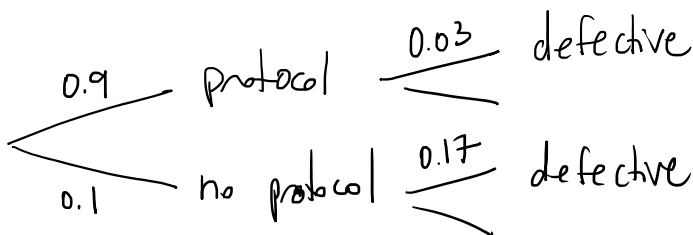
③

$$Pr(\text{weights} \mid \text{treadmill}) = \frac{Pr(\text{weights and treadmill})}{Pr(\text{treadmill})}$$

$$= \frac{0.15}{0.7}$$

$$\approx 0.21$$

④



$$Pr(\text{protocol} \mid \text{defective})$$

$$= \frac{\text{Pr}(\text{protocol and defective})}{\text{Pr}(\text{defective})}$$

$$= \frac{0.9(0.03)}{[0.9(0.03) + 0.1(0.17)]}$$

$$\approx 0.61$$

⑤

BINOMIAL

$$n = 5$$

$$p = 0.22$$

$$q = 1 - p = 0.78$$

x = # sales made

$$P(x \leq 2) = P(x=0) + P(x=1) + P(x=2)$$

$$= {}_5C_0(0.22)^0(0.78)^5 + {}_5C_1(0.22)^1(0.78)^4 + {}_5C_2(0.22)^2(0.78)^3$$

$$\approx 0.93$$

⑥

a)

	$X = \text{net winnings } (\$)$	$P(X)$
draw \$5	-15	$\frac{13}{20}$
draw \$50	30	$\frac{7}{20}$

draw \$5

-15

$\frac{13}{20}$

draw \$50

30

$\frac{7}{20}$

$$b) E(x) = -15 \left(\frac{13}{20} \right) + 30 \left(\frac{7}{20} \right)$$

$$= 0.75$$

Expect to win \$0.75