

章末問題 1-10 の解答 (新納)

X を 5 回中 Yes と発言した回数とすると、題意より $X \sim B(5, 4/5)$ 。求める確率は

$$P(X \geq 3) = P(X = 5) + P(X = 4) + P(X = 3)$$

$$P(X = 5) = {}_5C_5 \left(\frac{4}{5}\right)^5 \left(\frac{1}{5}\right)^0 = \frac{1024}{5^5}$$

$$P(X = 4) = {}_5C_4 \left(\frac{4}{5}\right)^4 \left(\frac{1}{5}\right)^1 = \frac{1280}{5^5}$$

$$P(X = 3) = {}_5C_3 \left(\frac{4}{5}\right)^3 \left(\frac{1}{5}\right)^2 = \frac{640}{5^5}$$

以上より、

$$P(X \geq 3) = \frac{1024 + 1280 + 640}{5^5} = \frac{2944}{5^5} = 0.94208$$