4. Suppose we are going to sample one person from these respondents, each one of them having an equal chance to be selected.

3. \( P(\text{male}) = \) \( \frac{\text{# of males}}{\text{# of respondents}} = \frac{105}{202} = 0.5198 \)

   A. 0.4286   B. 0.5198   C. 0.4802   D. 0.6929   E. 0.3429

4. \( P(\text{republican} \mid \text{female}) = \) \( \frac{\text{P(republican and female)}}{\text{P(female)}} = \frac{\frac{33}{202}}{\frac{97}{202}} = \frac{33}{97} \approx 0.3402 \)

   A. 0.4231   B. 0.3861   C. 0.4802   D. 0.3402   E. 0.1395
Answer questions 5 and 6 based on the following information. A box has colored balls numbering 3R 2G 4Y. A ball is selected from the 9 with equal probability for all balls. Then a second ball is selected from the remaining balls with equal probability. This is termed “without replacement”

5. \( P(\text{First ball is red and second ball is yellow}) = P(R1Y2) = \) \[ A. \ 0.166 \quad B. \ 0.333 \quad C. \ 0.4444 \quad D. \ 0.1481 \quad E. \ 0.0833 \]

\[ P(R1Y2) = P(R1) \times P(Y2|R1) = \frac{3}{9} \times \frac{4}{8} = \frac{1}{6} \approx 0.1667 \]

6. \( P(\text{Second ball is yellow}) = P(Y2) = \) \[ A. \ 0.5 \quad B. \ 0.3333 \quad C. \ 0.4444 \quad D. \ 0.4 \quad E. \ 0.0833 \]

\[ P(Y2) = P(Y1^cY2) + P(Y1Y2) = P(Y1^c)P(Y2|Y1^c) + P(Y1)P(Y2|Y1) \]
\[ = \frac{5}{9} \times \frac{4}{8} + \frac{4}{9} \times \frac{3}{8} = \frac{4}{9} \approx 0.4444 \]