

Solutions

Authored self-check guidance: accept equivalent correct methods and supported interpretations. The points check reasoning, not an official grade.

2.1 **A** – $4 \cdot 3/2=6$; order does not matter. **B** counts ordered roles; **C** doubles a count without correct pairing; **D** allows repeated independent selections and order. Neither is an unranked pair of distinct people.

Correct response linked to the given case.

2.2 **B** – $10 \cdot 0.2+0 \cdot 0.8=2$. **A** is probability without award size; **C** is the possible prize, not its average; **D** assumes two equally likely outcomes despite probability 0.2.

Correct response linked to the given case.

2.3 60 – Subtract four percentage points.

Correct response linked to the given case.

2.4 False – It means the evidence did not justify rejection under the procedure.

Correct response linked to the given case.

3.1 Ordered roles give $6(5) = 30$. Unranked pairs count each pair twice in that product, so there are $6(5)/2 = 15$. Swapping people changes roles but not an unranked committee.

Sound conclusion or proposed method. Relevant supporting steps or textual evidence. Accurate conditions, checks or qualification.

3.2 Remaining probability is 0.5. $E(P) = 12(0.1)+3(0.4)+0(0.5) = 2.4$ tokens. Expected net is $E(G) = E(P) - 2 = 0.4$ token per play. Actual net outcomes are 10,1,-2; none equals 0.4, which is a long-run mean under the model.

Sound conclusion or proposed method. Relevant supporting steps or textual evidence. Accurate conditions, checks or qualification.

3.3 $P(RR) = (3/5)(2/4) = 3/10$. Exactly one red can occur as RB or BR: $P = (3/5)(2/4) + (2/5)(3/4) = 3/5$. The second denominator is 4; the draws are dependent.

Sound conclusion or proposed method. Relevant supporting steps or textual evidence. Accurate conditions, checks or qualification.

3.4 Interval is $62\% - 4\% = 58\%$ to $62\% + 4\% = 66\%$, where the subtraction denotes points. The population is registered members in the sampling frame. Nonmembers were not sampled, so the estimate does not establish all residents' support.

Sound conclusion or proposed method. Relevant supporting steps or textual evidence. Accurate conditions, checks or qualification.

3.5 Random assignment supports a causal comparison of the instruction versions for these participants under the tested conditions, subject to variation. Volunteer selection limits population generalisation. It does not establish that every future user will finish faster.

Sound conclusion or proposed method. Relevant supporting steps or textual evidence. Accurate conditions, checks or qualification.

3.6 People choosing to respond can differ systematically from those who do not. A margin for sampling variability does not remove that bias. Select randomly from the defined target population and follow up nonresponse; still report limitations.

Sound conclusion or proposed method. Relevant supporting steps or textual evidence. Accurate conditions, checks or qualification.