1. A biomedical journal has published 5000 articles which rejected their null hypotheses at a significance level of 0.05. Roughly how many of these 5000 articles reached the wrong conclusion?

(A) 1000

(B) 250

(C) Not enough information to say

(D) None of the above

2.   The same biomedical journal has published 100 articles which failed to reject their null hypothesis at a significance level of 0.05. Roughly how many of these 100 articles reached the wrong conclusion?

(A) 10

(B) 5

(C) Not enough information to say

(D) None of the above

3. Suppose you conduct a hypothesis test based on a sample size of $n = 50$ and arrive at a p-value of 0.08. You then refer back to your notes and realize you've made a careless mistake: the sample size was really $n = 500$. If you redo your p-value calculation, you'll find that...

(A) The new p-value is still equal to 0.08.

(B) The new p-value is bigger than 0.08.

(C) The new p-value is less than 0.08.

(D) None of the above.

4. You want to know what percentage of books written by female authors in 2020 feature a female protagonist. You take a simple random sample of 1000 books written by female authors in 2020 and compute a 95% confidence interval for the proportion of those books which feature a female protagonist. The margin of error for your confidence interval is 10%. How big a sample size would you have needed if you wanted your confidence interval to have a margin of error of 5%?

(A) 250 books

(B) 500 books

(C) 2000 books

(D) None of the above

5. True or False?

With large sample sizes, even small differences between the null value and the observed point estimate can be statistically significant.