$$MOE=\frac{1}{\sqrt{n}} MOE\_{diff}=2×\frac{1}{\sqrt{n}}$$

$$MOE\_{diff}=1.5×\left(average MOE\right)$$

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| --- | --- |
| 1. 6488 randomly selected US teenagers were surveyed. 2466 of them said that they did housework 5 or more times a week. A news story said only a third of US teenagers did housework 5 or more days a week. Do the survey results support the claim?
 | 1. 6498 US teenagers were randomly surveyed. 29% said that they did no active sports at all and 24% said that they played active sports 5 or more times per week. Is there a difference in proportion who play no sports vs those who play sports 5 or more times a week?
 |
| 1. Of 546 US year 12 girls surveyed, 93 did active sports at least 3 times a week, while 191 spent time on hobbies at least 3 times a week. Are year 12 girls more likely to do hobbies than sport?
 | 1. Of 128 randomly surveyed US teens who were not in school, 92 said that they did active sport less than 3 times a week. A newspaper article claimed that 4 out of 5 US teens not in school were not doing any exercise. Do the survey results support the claim?
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| 1. 6501 US teenagers were randomly surveyed. 33% of the males said they did housework 5 or more times a week, compared to 43% of the females. Is there a difference between males and females?
 | 1. Of a random sample of recovering alcoholics who consumed alcohol, 20 out of 33 relapsed. Of recovering alcoholics who did not consume alcohol, 48 out of 144 relapsed. Is there a difference in relapse rates between those that consume alcohol or don’t?
 |
| 1. Of 1107 year 9 students randomly surveyed in the US, 103 said that they spent time with friends out of school time less than once a week, compared to 83 of 993 year 12 students. Are year 9s more likely to spend time with friends than year 12 students?
 | 1. Of 993 randomly surveyed US year 12 students, 78 got less than 6 hours of sleep the previous night and 59 got more than 9 hours of sleep. Is there a difference in the proportion of students who got less than 6 hours compared to those who got more than 9 hours of sleep?
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| Confidence interval | interpretation | Confidence level |
| **(A)**[36.8 %, 39.2 %] | Claim is not supported. | 95% |
| **(B)**(0.6304 <***π*** < 0.8071) | Confidence interval is consistent with the claim, but claim should be rephrased. | at least 95% |
| **(C)**10 p pts ± 2.6 p pts | Supports a claim that there is a difference. | 95% |
| **(D)**[-4.4 p pts, 8.3 p pts] | Does not support a claim that there is a difference. | at least 95% |
| **(E)**(0.025 <***π***1 – π2< 0.075) | Supports a claim that there is a difference. | at least 95% |
| **(F)**0.95 p pts ± 4.63 p pts | Does not support a claim that there is a difference. | at least 95% |
| **(G)**[8.0 p pts, 46.6 p pts] | Supports a claim that there is a difference. | 95% |
| **(H)**(0.094 <***π***1 – π2< 0.265) | Does not support a claim that there is a difference. | at least 95% |