YouTube is giving an award for the most popular “Let’s Play” channel, given the boom in this trend in the past few years. YouTube’s algorithm, flawed as it may be, has narrowed it down between two channels: PewDiePie and the Game Grumps, and decides to award them both the title of most popular. You are tasked with determining popularity over the course of their respective channels to see if YouTube got it right. You decide that you will randomly take 8 videos from each channel, spanning the channel’s history, and report the number of views (in 100,000s). Given the number of views below, are the Let’s Players significantly different using the *p* < .05 criterion?

|  |  |
| --- | --- |
| Game Grumps | PewDiePie |
| 2 | 4 |
| 3 | 5 |
| 2 | 8 |
| 4 | 9 |
| 5 | 10 |
| 2 | 3 |
| 1 | 6 |
| 6 | 7 |

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| Assumptions:  DV scale? Yes, ratio  Randomly select: yes  Normal? N = 16 … so don’t know Homogeneity look at the variances = they are pretty close, yes |
| Step 1/2:  R: Game Grumps =/ Pew  N: Game Grumps = Pew |
| Step 3:   |  |  |  | | --- | --- | --- | |  | **Group 1** | **Group 2** | | Mean | 3.125 | 6.50 | | SD | 1.73 | 2.45 | | N | 8 | 8 | | df | 7 | 7 | | Spooled | 2.12 (denominator for effect size) | | | Sdifference | 1.06 (denominator for t) | | |
| Step 4: df total = 14  qt(.05/2,14, lower.tail = F)  + and – 2.14 |
| Step 5:  - 3.19  Two Sample t-test  data: chapter11.data$grumps and chapter11.data$pew  t = -3.1851, df = 14, p-value = 0.006613  alternative hypothesis: true difference in means is not equal to 0  95 percent confidence interval:  -5.647632 -1.102368  sample estimates:  mean of x mean of y  3.125 6.500 |
| Step 6:  Reject the null  Pew > Game Grumps more views |
| Confidence Interval:  95 percent confidence interval:  -5.647632 -1.102368 |
| Effect size:  -1.59 |

A record company is interested in knowing which two artists are selling more albums, and if there is a significant difference. They want to know is it an R&B artist or a Pop artist? Use the *p* < .05 criterion.

|  |  |
| --- | --- |
| R&B | Pop |
| 100 | 137 |
| 175 | 230 |
| 200 | 50 |
| 406 | 400 |
| 75 | 126 |
| 100 | 80 |
| 60 | 130 |
| 175 | 100 |
| 209 | 152 |
| 100 | 75 |

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| Assumptions:  DV is scale? – yes, ratio  Normal? Not sure N < 30  Random selection? Yes, random assign – no  Homogeneity (equal variances) – yes |
| Step 1/2:  R: R & B =/ Pop  N: R & B = Pop |
| Step 3:   |  |  |  | | --- | --- | --- | |  | **Group 1** | **Group 2** | | Mean | 160 | 148 | | SD | 101.65 | 101.67 | | N | 10 | 10 | | df | 9 | 9 | | Spooled | 101.66 | | | Sdifference | 45.46 | | |
| Step 4:  Df total = 18 (9 + 9), p < .05  + and – 2.10 |
| Step 5:  0.26  data: dataset$rb and dataset$pop  t = 0.26395, df = 18, p-value = 0.7948  alternative hypothesis: true difference in means is not equal to 0  95 percent confidence interval:  -83.51586 107.51586  sample estimates:  mean of x mean of y  160 148 |
| Step 6:  Fail to reject the NULL |
| Confidence Interval:  95 percent confidence interval:  -83.51586 107.51586 |
| Effect size:  .12 (nothing) |