

- H* test. *See* Kruskal-Wallis test
- Hurricane problem, 229–230
- Hypergeometric distribution, 222–223
- Hypothesis. *See also* Hypothesis testing
- alternative, 384–386
 - definition, 382
 - null, 384–386, 388–393
- Hypothesis testing, 161, 290–291, 380–439, 442. *See also* Test statistic
- central limit theorem, 290–291
 - chi-square distribution, 423–431, 432, 566–568
 - components, 382–399
 - comprehensive, 393–395
 - conclusions, 390–391
 - confidence interval, 327–328, 347–349, 365–368, 385, 393–394, 403, 417–418
 - critical region, 388–390
 - definition, 382
 - dependent samples, 467–477
 - errors, 392–393
 - inferences from two samples, 443–449, 453–462, 467–477
 - left-tailed, 388, 406, 508
 - linear correlation, 505–510
 - mean, 387, 412–423, 432, 458–459
 - mean (standard deviation known), 418–419
 - mean (standard deviation not known), 412–418, 432
 - multiple-negative conclusions, 391
 - one-tailed, 508
 - power, 394–396
 - proportion, 387, 432, 443–449
 - P*-value method, 387, 388–389, 390, 394, 399, 400, 401–402, 403, 405–406, 412, 413–419, 427, 443, 444–446, 455, 456, 459, 468, 480, 507–508
 - right-tailed, 388, 406, 508
 - sampling distribution for, 387
 - selecting appropriate procedures for, 722
 - significance level, 386–387
 - simulations, 437–438
 - standard deviation/variance, 423–431, 432, 477–486
 - statistic relevant to, 387
 - summary, 432
 - test statistic, 387. *See also* Test statistic
 - traditional method (critical value), 387, 389–390, 446, 455, 456, 457, 459, 468, 469, 480
 - two means, 453–462
 - two-tailed, 388, 390, 403, 406, 508
- I**
- Identity theft, 5
- Inauguration attendance, 345
- Inclusive or, 149
- Income problem
- gender, 64
 - multiple bar graph of, 64
 - per capita, 86
- Independence, test for, 577–582
- definition, 578
 - hypothesis, 580–582
 - key elements of, 578
 - relationships among key components in, 582
- Independent event, 157–158
- Independent (predictor) variables, 517, 540, 545
- Independent sample, 443, 454, 455
- Inferences, 722
- Inferences from two samples, 440–493
- confidence interval, 443, 446–448, 456, 460, 469
 - count five method, 481
 - dependent samples, 467–477
 - F* distribution, 477–481
 - hypothesis testing, 443–449, 453–462, 467–477
 - Levene-Brown-Forsythe test, 481–482
 - means, 453–467
 - proportions, 442–453
 - variance/standard deviation, 477–486
- Inferential statistics, 80, 324
- Influential points, 522, 523
- Informal judgment, 327, 328, 347, 365
- Institutional Review Board (IRB), 718
- Insulation thickness study, 702
- Interaction, 614–616, 617, 620
- Interaction graph, 616
- Internet polls, 7
- Interpolation, 126
- Interquartile range, 121
- Interval data, 19–20
- Interval estimate. *See* Confidence interval (interval estimate)
- Interviewer bias, 715–716
- Intuitive addition rule, 151
- Intuitive multiplication rule, 157
- Inverse, confusion of, 171
- iPod random shuffle study, 677
- IQ score problems, 43, 45, 46, 47, 48, 50, 63, 66–67, 87, 103–104, 264–265, 298, 352–353, 363, 365–366, 368, 599–600, 602–603, 608–610, 615, 616, 618–622, 662–664, 693
- J**
- Jet engine problem, 158
- Job applicant appearance problem, 403–404
- Journalism, 31
- Journal of the American Medical Association*, 7
- Judgment, informal, 327, 328, 347, 365
- K**
- Kruskal-Wallis test, 661–665
- L**
- Laughing index, 115
- Law of large numbers, 137
- Least significant difference test, 608
- Least-squares property, 523–525
- Left-handedness study, 405
- Left-tailed test, 388, 406, 508
- Levene-Brown-Forsythe test, 481–482
- Lie detection, 401, 427
- Life data analysis, 200
- Limit, class, 45–46
- Linear correlation, 496
- formal hypothesis test, 505–510
 - strength of, 497–499
- Linear correlation coefficient, 61, 496, 497–502
- calculation, 499, 500–502
 - definition, 497
 - interpretation, 499, 502–505
 - notation for, 498
 - properties, 500
 - rounding, 499–500
- Linearity, *vs.* correlation, 505
- Literary Digest* poll, 8
- Loaded questions, 9–10
- Logistic regression, 545–547
- Lognormal distribution, 301
- Longitudinal study, 27, 28
- Lottery problems, 137, 178–179, 231
- Lower class limits, 45
- Lower control limits, 695
- Lung cancer, 669
- Lurking variable, 23, 505
- M**
- McDonald's brand recognition, 223–224
- McNemar's test, 584–585
- Madison, James, 46
- Mail surveys, 7, 715–716
- Mann-Whitney *U* test, 655, 660
- Marginal change, 522–523
- Margin of error, 329–333
- confidence interval, 335, 350, 351
 - definition, 329
 - mean, 353
 - polling, 444
 - proportion, 329–333, 335
 - sample size and, 334
- Marijuana legalization problem, 199
- Mars Climate Orbiter, 697
- Matched pairs (dependent samples) design, 30, 31, 454, 467–477
- McNemar's test, 584–585
 - notation, 468
 - sign test, 638, 640–642
 - test statistic for, 468–469
 - Wilcoxon signed-ranks test, 648–654
- Mathematical expectation. *See* Expected value
- Mathematical modeling, 551–552
- Maximum error of the estimate. *See* Margin of error