

Stat 200 Exam 2
STATISTICS 200 EXAM 2
PRINT NAME _____

October 30, 2017

OCTOBER
KEY

(Last name)

(First name)

Net ID (email, not UIN)

Circle Section: L1 Online

Write answers in appropriate blanks. When no blanks are provided **CIRCLE** your answers. **SHOW WORK** when requested.

No notes or books are allowed. Calculators (except for ones connected to the internet) are allowed. Do not use your own scrap paper. If you need some, ask me.

Make sure you have all 8 pages (10 problems) including the Normal and F tables.
DO NOT WRITE BELOW THIS LINE _____

The numbers written in each blank below indicate how many points you missed on each page. The numbers printed to the right of each blank indicate how many points each page is worth.

Page 1 _____ **16**

Page 2 _____ **14**

Page 3 _____ **8**

Page 4 _____ **28**

Page 5 & 6 _____ **34**

Score _____

Scores will be posted on Compass Wed night and exams will be returned in class on Thursday. Online student can pick up their exams during office hours between 4-6 pm in 23 IH.

Question 1 (16 points total)

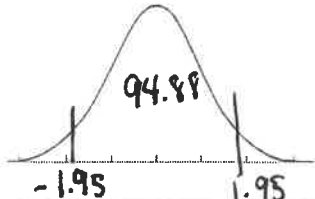
We're trying to fit a simple linear regression model for the whole population: $Y = \beta_0 + \beta_1 X + \epsilon$. (Assume ϵ are independent and normally distributed with constant variance). We draw a random sample of $n=20$ from the population and get a sample correlation $r = 0.4$. Compute the 4 test statistics for testing the null $H_0: r=0$ in the population. (same as testing $H_0: \beta_1=0$.) (Round your final answers to 3 decimal places, but don't round during intermediate steps.)

a) (1 pt.) First compute: $R^2 = 0.16$ (Don't round.) $1-R^2 = 0.84$ (Don't round).

b) Now compute the values of 4 test- statistics below. Show work below your answers (4 pts.)

| Z | χ^2 | t | F |
|---------------------|---|---------------------|---|
| $Z = 1.952$ (1 pt.) | $\chi^2 = 3.81$ (1 pt.) $\frac{0.16}{0.84} \cdot 20$ | $t = 1.852$ (1 pt.) | $F = 3.429$ (1 pt.) $\frac{0.16}{0.84} \cdot 18$ |

c) (6 pts.) Compute the p-values for each statistic.
Assume alternative is $H_A: r_{pop} \neq 0$ for all 4 tests.

| Z | χ^2 | t | F |
|---|---|--|--|
| i) p-value = <u>5.12</u> % (1 pt.) Concept 5 ii) *Label Z on the normal curve below and shade the area representing the p-value. (1 pt.)  | p-value = <u>5.12</u> % (1 pt.) No work necessary. | p-value for t is <u>2</u> p-value for Z (1 pt.) Circle one: a) < b) > c) = | i) p-value for F is ____ p-value for t (1 pt.) Circle one: a) < b) > c) = ii) p-value for F is ____ p-value for χ^2 (1 pt.) Circle one: a) < b) > c) = |

*If Z is between 2 lines in the table, choose the closest line. Don't round the given middle area given in the table.

d) (1 pt.) If you changed the alternative for the Z and t tests to $H_A: r_{pop} > 0$ how ^{would} their p-values change? They would be ...
 (i) divided by 2 ii) stay the same iii) multiplied by 2

e) To use the ANOVA chart to calculate F, you'd need to calculate SST. Suppose $SD_y = 5$, and $n=20$, and $r=0.4$.

i) (2 pts.) What is SST? Show work.

$$25 \cdot 20 = 500$$

ii) (2 pts.) What is SSM? Show work.

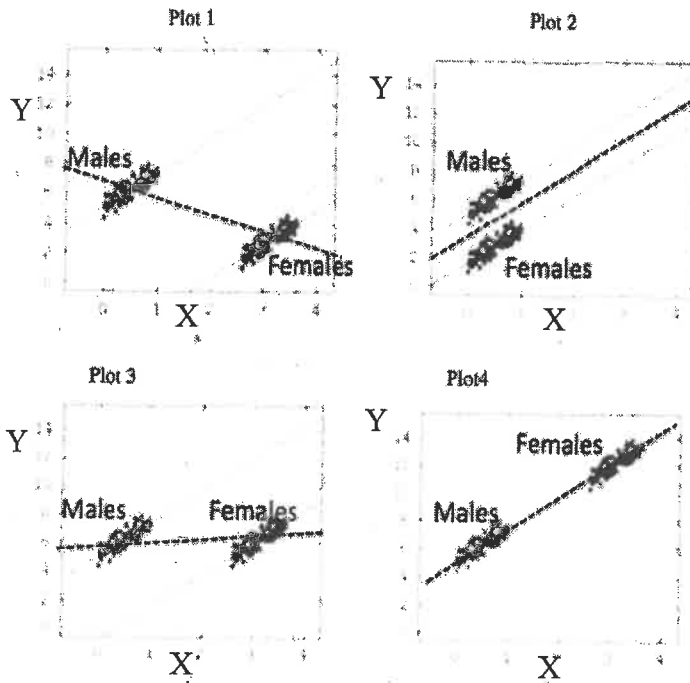
$$.16(500) = 80$$

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Question 2 (8 pts.)

Let's say the 4 plots below depict data from 4 populations and we're trying to figure if X causes Y in these 4 populations. Each plot consists of 2 groups (males and females as marked).



a) (2 pts.) First let's focus on the relation between X and Y within each group.

Is there the same strong positive relation between X and Y for both males and females in each population?

i) No, because males and females have different Y levels in some of the populations.

ii) No because males and females have different X values in some of the populations.

iii) Yes because they all have the same slope

b) (2 pts.) Now, let's focus on the overall regression effect (indicated by the dashed line) in the 4 plots.

For which plots does the overall regression effect agree with the group regression effects?

i) Only Plot 4 since the overall slope and the overall intercept is the same as the group slopes and intercepts.

ii) Plots 2 and 4 only, since the overall slope is the same as the group slopes.

iii) None of them because men and women are clearly separate groups in all 4 plots.

c) (2 pt.) In which plot is there an interaction effect between Gender and X?

Circle all that apply: i) Plot 1 ii) Plot 2 iii) Plot 3 iv) Plot 4 v) None

d) (2 pt.) In which plots is the overall influence of X on Y confounded because of gender?

Circle all that apply: i) Plot 1 ii) Plot 2 iii) Plot 3 iv) Plot 4 v) None

Question 3 (6 pts.)

Suppose A and B are 2 drugs designed to help improve test scores.

The numbers in each table indicate the average number of points gained in 4 groups—those who received neither drug, those who received only Drug A, those who received only Drug B, and those who received both drugs. Each table describes a different hypothetical study.

Fill in the missing blanks so that the equation and the tables match. Fill in ALL 12 blanks.

No Interaction

Points = 2 + 3A + 4B

| | A=0 | A=1 |
|-----|-----|----------|
| B=0 | 2 | 5 |
| B=1 | 6 | <u>9</u> |

Only Interaction

Points = 2 + 5AB

| | A=0 | A=1 |
|-----|----------|----------|
| B=0 | 2 | <u>2</u> |
| B=1 | <u>2</u> | 7 |

Points = 5A + 6B - 2AB

| | A=0 | A=1 |
|-----|----------|----------|
| B=0 | <u>0</u> | <u>5</u> |
| B=1 | <u>6</u> | <u>9</u> |

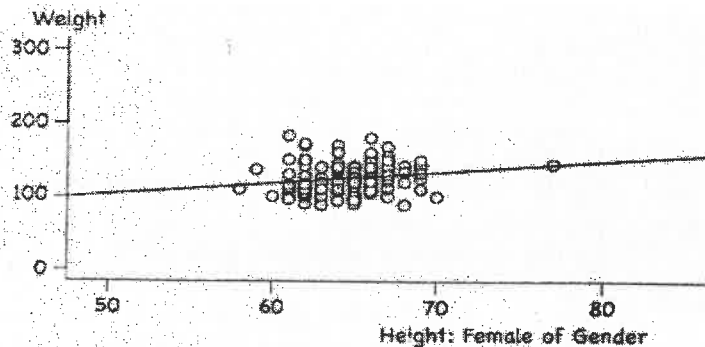
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Question 4 (4 pts.)

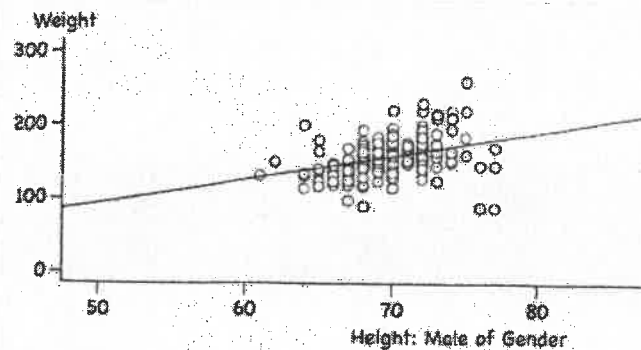
The scatter plots below show the Height (in inches) on the X axis and the Weight (in lbs.) on the Y axis of the 123 females and 165 males in this class who responded to Survey 1.

Females



Female: $\text{Weight} = 27.18 + 1.613 \times \text{Height}$

Males



Male: $\text{Weight} = -67.78 + 3.251 \times \text{Height}$

- a) (2 pts.) Translate the 2 simple regression equations into the multiple regression equation below. Assume Gender is a 0-1 variable coded with Males=0 and Females=1.

Weight = -116.7 + 4 * Height + 143.9 Gender + -2.39 Gender*Height

- b) (2 pts.) If you switched the code so that Males=1 and Females=0, what would the multiple regression equation be?

Weight = 27.2 + 1.61 * Height + -143.9 Gender + 2.39 Gender*Height

Question 5 (4 pts.) When the null hypothesis is true in a regression model with 8 parameters and large n, you'd expect your F stat to be about 1 and your χ^2 stat to be about 7 when the null is true. Write a number in each blank.

$df = p - 1$

Question 6 (28 pts.) Our last survey yielded this multiple regression equation: $\hat{\text{Piercings}} = -0.01 + 1.34 * \text{Gender} + 0.6 * \text{Tattoos}$ based on 231 responses to questions asking: How many piercings do you have?, How many tattoos do you have? and What's your gender? Imagine the 231 students were randomly drawn from a much larger population of Stat 200 students.

- a) (2 pts.) The above equation describes the best fitting _____ Circle one: i) line **ii) plane** iii) ellipsoid iv) cube through all the points so as to minimize the squared errors in the _____. Circle one: **a) Piercings** b) Tattoos c) Gender
- b) (2 pts.) What does the 1.34 Gender slope mean in the equation above? (Gender is coded as 1 for females and 0 for males.)
 i) For those with the same number of piercings, females have 1.34 more tattoos than males on the average.
ii) For those with the same number of tattoos, females have 1.34 more piercings than males on the average.
 iii) Regardless of the number of tattoos, females have 1.34 more piercings than males on the average.
- c) (2 pts.) The multiple regression equation for all students with Tattoos = 5 simplifies to: $\hat{\text{Piercings}} = \underline{2.99} + \underline{1.34} * \text{Gender}$ (Fill in the 2 blanks with numbers.)
- d) (1 pt.) Comparing 2 people of the same sex who differ by 5 in their number of tattoos, how much does the regression equation estimate they'd differ in their number of piercings? 3
- e) (2 pts.) Comparing 2 people of the opposite sex who differ by 5 in their number of tattoos, how much does the regression equation estimate they'd differ in their number of piercings?
 i) if the female has 5 more tattoos than the male? 3.34 $5(0.6) + 1.34$
 ii) if the male has 5 more tattoos than the female? 1.66 $5(0.6) - 1.34$
- f) Do the F test for the overall regression effect for the model: $\hat{\text{Piercings}} = -0.01 + 1.34 * \text{Gender} + 0.6 * \text{Tattoos}$ given $R = 0.7$
 i) (2 pt.) Compute the F statistic. $\frac{0.7^2}{1-0.7^2} \frac{228}{2} = \underline{109.53}$ $p = 3$
 Show work. Circle answer. $n = 231$
 ii) (2 pt.) Look at the F table. What is F^* at $\alpha = 0.01$? $E^* = \underline{4.7865}$ (If df is between 2 lines on table use line with the smaller df)
 iii) (2 pts.) Our F test stat > F^* so our p-value is < than 1%. Fill in the two blanks with either <, >, or =
- g) (2 pt.) Suppose you decided to reject the null, you'd conclude that ... Circle one:
 i) The gender slope must be significant ii) The tattoo slope must be significant
 iii) Both must be significant **iv) Either the gender or tattoo slope or both must be significant.**
- h) (2 pt.) To see which slope is significant in the multiple regression equation the computer ran a Z test and a t-test. Which test would yield higher p-values for the slopes? Circle one: **i) t-test** ii) Z-test iii) they'd be exactly the same iv) Not enough info
- i) (1 pt.) How many degrees of freedom for the t-test? 228 $231 - 3$
- j) (2 pts.) The computer ran 2-sided significance tests for each slope and found they were both significant at $\alpha = 0.02$. Translate these results into Confidence Intervals that give exactly the same information by filling in the 2 blanks with the correct numbers.
98 % Confidence Intervals for both slopes do not include 0. Fill in both blanks with numbers.
100% - α \uparrow null H_0 : slope = 0
- k) (2 pt.) Another variable is added to the model that is negatively correlated with piercings. Will R^2 go up or down? Circle one:
 i) **Up** ii) Down iii) Stay the same iv) Either down or stay the same v) not enough info
- l) (2 pt.) Let's say a 3rd variable that's correlated with piercings is added to the multiple regression model and the slopes for gender and tattoos stay the same. You can conclude the 3rd variable must be
 i) correlated with either gender or tattoos. **ii) uncorrelated with both gender and tattoos.** iii) correlated with both gender and tattoos.
 iv) negatively correlated with gender and positively correlated with tattoos (or vice versa) so their effects cancel out.
- m) (2 pt.) How was the multiple correlation, $R = 0.7$ calculated?
 i. It's the correlation between the 3 variables.
 ii. It's product of the 3 off-diagonal r's given in the correlation matrix.
iii. It's the correlation between the students' actual number of piercings and their predicted number of piercings from the multiple regression equation.

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Question 7 (20 pts.) On the last survey 231 students rated how strongly they believed in God on a scale of 0-10 (with 0 meaning not at all and 10 meaning absolutely). Below are the (rounded) results classified by ethnic groups. Imagine the 231 students were randomly drawn from a much larger population of all Stat 200 students.

| | Group | Mean | SD | n |
|---------------|-------------|------|-----|-----|
| Belief in God | White | 5.3 | 3.5 | 44 |
| Belief in God | East Asian | 3.7 | 3.2 | 133 |
| Belief in God | South Asian | 6.6 | 2.8 | 27 |
| Belief in God | Other | 6.1 | 4 | 27 |

$$SD_{\text{errors}}^+ = 3.34$$

Use SD_{errors}^+ as a pooled estimate of the SD for each group.

a) (9 pts.) First, to assess whether *any* of the differences between the group averages are significant in the population, fill out the 9 missing numbers in the ANOVA table below.

| Source | SS (Rounded to nearest whole number) | df | MS (Round to 2 decimal places) | (Round to 3 decimal places) |
|--------|--------------------------------------|--------------------|-----------------------------------|-----------------------------------|
| Model | SSB= 299 | $\div 3 = 99.67$ | $\frac{99.67}{11.17} = 8.923$ | F= 8.923 |
| Error | SSW= 2536 | $\div 227 = 11.17$ | $\sqrt{11.17}$ | $SD_{\text{errors}}^+ = 3.342$ |
| Total | SST= 2835 | 230 | Don't write anything in this box. | $R^2 = \frac{299}{2835} = 0.1055$ |

b) (1 pt.) The p-value is closest to ... ☒ i) < 1% ii) 1% to 5% iii) 5% to 10%

c) (1 pt.) What do you conclude? Choose one.

- i) That all of the group averages are significantly different from each other in the population.
- ☒ ii) That at least one of the group averages is significantly different from the others in the population.
- iii) That none of the group averages are significantly different from each other in the population.

d) Now focus on the difference between the White and East Asian group averages.

i) (2 pts.) What is the $SE_{\text{difference}}$? Show work. Circle answer. Round to 3 decimal place.

$$3.34 \sqrt{\frac{1}{44} + \frac{1}{133}} = 0.581$$

ii) (2 pts.) What is the t-statistic? Show work. Circle answer. Round to 2 decimal places.

$$t = \frac{5.3 - 3.7}{0.581} = 2.75$$

iii) (1 pt.) How many degrees of freedom? 227

iv) (2 pts.) The p-value is about 0.58%. The Bonferroni correction would change the p-value to 3.48%. $\Rightarrow 0.58\% \times 6$

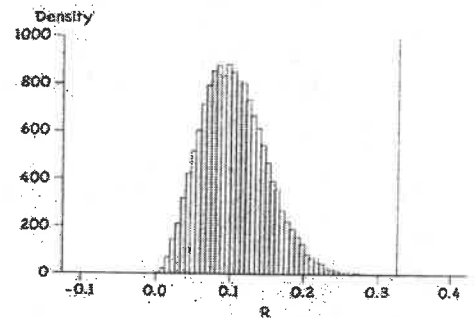
v) (2 pts.) The Bonferroni correction lowers the probability of making a... Choose one.

- ☒ i) Type 1 error
- ii) Type 2 error
- iii) Both

Question 7 cont. (6 pts.) Now let's test the same null ($R_{pop} = 0$) against the same alternative ($R_{pop} \neq 0$) using the randomization test. The histogram below shows the distribution of R's resulting from 60,000 randomizations.

e) (2 pts) How was each randomization done?

- ☒ The 231 actual ratings given by the students were randomly distributed among the 4 ethnic groups.
- ☐ The 231 students were randomly assigned numbers between 0 and 10 and randomly assigned to the 4 ethnic groups.
- ☐ Random numbers between 0 and 10 were assigned to the 4 ethnic groups.
- ☐ The 151 students were randomly assigned numbers between 1 and 60,000 and randomly assigned to the 3 ethnic groups.



f) (2pts.) The vertical line falls between 0.3 and 0.4, give its exact location to 3 decimal points.

Show work.

$$\sqrt{0.1055} = 0.325$$

g) (2 pts.) What does the area of the histogram to the right of the vertical line represent?

Circle all that are true.

- ☒ The percentage of randomized R's as big or bigger as the R we obtained from our survey sample.
- ☐ The p-value given by the F-test.
- ☒ The p-value given by the randomization test.

Question 8 (4 pts.) 30 numbers are divided into 3 groups of 10 numbers each.

The 3 group means are: 1, 4 and 5, and the overall mean of the 30 numbers is 0. Which of the following do you have enough information to calculate?

Circle one: i) SST ii) ☒ SSB iii) SSW iv) None Calculate the one you circled. If you circled none, leave blank. Show work.

$$10(2-0)^2 + 10(3-0)^2 + 10(5-0)^2 = 40 + 90 + 250 = 380$$

Questions 9 (2 pts.) In an ANOVA analysis comparing group means, if $SSB = 0$, then what **must** be true:

- ☐ All group means = 0
- ☐ The overall mean = 0
- ☒ All group means are the same.
- ☐ All of the above
- ☐ None of the above

Question 10 (2 pts.) In an ANOVA analysis comparing group means, if $SSW = 0$, then what **must** be true:

- ☒ The numbers within each group are the same.
- ☐ The numbers within each group must sum to 0.
- ☐ All group means = 0
- ☐ All of the above
- ☐ None of the above

✓ Critical Values for F distribution at $p = 5\%$ and $p = 1\%$

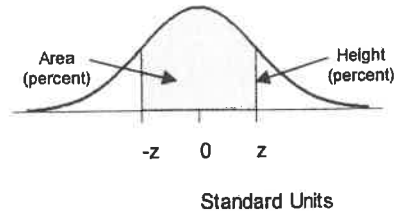
F Distribution critical values for $P=0.05$

| Denominator | | Numerator DF | | | | | | | | | | | | | |
|-------------|--------|--------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|
| DF | 1 | 2 | 3 | 4 | 5 | 7 | 10 | 15 | 20 | 30 | 60 | 120 | 500 | 1000 | |
| 1 | 161.45 | 199.50 | 215.71 | 224.58 | 230.16 | 236.77 | 241.88 | 245.95 | 248.01 | 250.10 | 252.20 | 253.25 | 254.06 | 254.19 | |
| 2 | 18.513 | 19.000 | 19.164 | 19.247 | 19.296 | 19.353 | 19.396 | 19.429 | 19.446 | 19.462 | 19.479 | 19.487 | 19.494 | 19.495 | |
| 3 | 10.128 | 9.5522 | 9.2766 | 9.1172 | 9.0135 | 8.8867 | 8.7855 | 8.7028 | 8.6602 | 8.6165 | 8.5720 | 8.5493 | 8.5320 | 8.5292 | |
| 4 | 7.7086 | 6.9443 | 6.5915 | 6.3882 | 6.2560 | 6.0942 | 5.9844 | 5.8579 | 5.8026 | 5.7458 | 5.6877 | 5.6580 | 5.6352 | 5.6317 | |
| 5 | 6.6078 | 5.7862 | 5.4095 | 5.1922 | 5.0504 | 4.8759 | 4.7351 | 4.6187 | 4.5582 | 4.4958 | 4.4314 | 4.3986 | 4.3731 | 4.3691 | |
| 7 | 5.5914 | 4.7375 | 4.3469 | 4.1202 | 3.9715 | 3.7871 | 3.6366 | 3.5108 | 3.4445 | 3.3758 | 3.3043 | 3.2675 | 3.2388 | 3.2344 | |
| 10 | 4.9645 | 4.1028 | 3.7082 | 3.4780 | 3.3259 | 3.1354 | 2.9782 | 2.8450 | 2.7741 | 2.6996 | 2.6210 | 2.5801 | 2.5482 | 2.5430 | |
| 15 | 4.5431 | 3.6823 | 3.2874 | 3.0556 | 2.9013 | 2.7066 | 2.5437 | 2.4035 | 2.3275 | 2.2467 | 2.1601 | 2.1141 | 2.0776 | 2.0718 | |
| 20 | 4.3512 | 3.4928 | 3.0983 | 2.8660 | 2.7109 | 2.5140 | 2.3479 | 2.2032 | 2.1241 | 2.0391 | 1.9463 | 1.8962 | 1.8563 | 1.8498 | |
| 30 | 4.1709 | 3.3159 | 2.9223 | 2.6896 | 2.5336 | 2.3343 | 2.1646 | 2.0149 | 1.9317 | 1.8408 | 1.7396 | 1.6835 | 1.6376 | 1.6300 | |
| 60 | 4.0012 | 3.1505 | 2.7581 | 2.5252 | 2.3683 | 2.1666 | 1.9927 | 1.8365 | 1.7480 | 1.6492 | 1.5343 | 1.4672 | 1.4093 | 1.3994 | |
| 120 | 3.9201 | 3.0718 | 2.6802 | 2.4473 | 2.2898 | 2.0868 | 1.9104 | 1.7505 | 1.6587 | 1.5544 | 1.4289 | 1.3519 | 1.2804 | 1.2674 | |
| 500 | 3.8601 | 3.0137 | 2.6227 | 2.3898 | 2.2320 | 2.0278 | 1.8496 | 1.6864 | 1.5917 | 1.4820 | 1.3455 | 1.2552 | 1.1586 | 1.1378 | |
| 1000 | 3.8508 | 3.0047 | 2.6137 | 2.3808 | 2.2230 | 2.0187 | 1.8402 | 1.6765 | 1.5811 | 1.4705 | 1.3318 | 1.2385 | 1.1342 | 1.1096 | |

F Distribution critical values for $P=0.01$

| Denominator | | Numerator DF | | | | | | | | | | | | | |
|-------------|--------|--------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|
| DF | 1 | 2 | 3 | 4 | 5 | 7 | 10 | 15 | 20 | 30 | 60 | 120 | 500 | 1000 | |
| 1 | 4052.2 | 4999.5 | 5403.4 | 5624.6 | 5763.6 | 5928.4 | 6055.8 | 6157.3 | 6208.7 | 6260.6 | 6313.0 | 6339.4 | 6359.5 | 6362.7 | |
| 2 | 98.503 | 99.000 | 99.166 | 99.249 | 99.299 | 99.356 | 99.399 | 99.433 | 99.449 | 99.466 | 99.482 | 99.491 | 99.497 | 99.498 | |
| 3 | 34.116 | 30.817 | 29.457 | 28.710 | 28.237 | 27.672 | 27.229 | 26.872 | 26.690 | 26.504 | 26.316 | 26.221 | 26.148 | 26.137 | |
| 4 | 21.198 | 18.000 | 16.694 | 15.977 | 15.522 | 14.976 | 14.546 | 14.198 | 14.020 | 13.838 | 13.652 | 13.558 | 13.486 | 13.474 | |
| 5 | 16.258 | 13.274 | 12.060 | 11.392 | 10.967 | 10.455 | 10.051 | 9.7222 | 9.5526 | 9.3793 | 9.2020 | 9.1118 | 9.0424 | 9.0314 | |
| 7 | 12.246 | 9.5467 | 8.4513 | 7.8466 | 7.4605 | 6.9929 | 6.6201 | 6.3143 | 6.1554 | 5.9920 | 5.8236 | 5.7373 | 5.6707 | 5.6601 | |
| 10 | 10.044 | 7.5594 | 6.5523 | 5.9944 | 5.6363 | 5.2001 | 4.8492 | 4.5582 | 4.4055 | 4.2489 | 4.0818 | 3.9964 | 3.9303 | 3.9195 | |
| 15 | 8.6831 | 6.3588 | 5.4169 | 4.8932 | 4.5557 | 4.1416 | 3.8049 | 3.5223 | 3.3719 | 3.2141 | 3.0471 | 2.9594 | 2.8906 | 2.8796 | |
| 20 | 8.0960 | 5.8489 | 4.9382 | 4.4306 | 4.1027 | 3.6987 | 3.3682 | 3.0880 | 2.9377 | 2.7785 | 2.6078 | 2.5167 | 2.4446 | 2.4330 | |
| 30 | 7.5824 | 5.3903 | 4.5098 | 4.0179 | 3.6990 | 3.3046 | 2.9791 | 2.7002 | 2.5486 | 2.3859 | 2.2078 | 2.1108 | 2.0321 | 2.0192 | |
| 60 | 7.0771 | 4.9774 | 4.1259 | 3.6491 | 3.3388 | 2.9530 | 2.6318 | 2.3522 | 2.1976 | 2.0284 | 1.8362 | 1.7264 | 1.6326 | 1.6169 | |
| 120 | 6.8509 | 4.7865 | 3.9490 | 3.4795 | 3.1736 | 2.7918 | 2.4720 | 2.1914 | 2.0345 | 1.8600 | 1.6557 | 1.5330 | 1.4215 | 1.4015 | |
| 500 | 6.6858 | 4.6479 | 3.8210 | 3.3569 | 3.0539 | 2.6751 | 2.3564 | 2.0746 | 1.9152 | 1.7353 | 1.5175 | 1.3774 | 1.2317 | 1.2007 | |
| 1000 | 6.6603 | 4.6264 | 3.8012 | 3.3379 | 3.0356 | 2.6571 | 2.3387 | 2.0564 | 1.8967 | 1.7158 | 1.4953 | 1.3513 | 1.1947 | 1.1586 | |

STANDARD NORMAL TABLE



| z | <i>Area</i> | | z | <i>Area</i> | | z | <i>Area</i> |
|------|-------------|--|------|-------------|--|------|-------------|
| 0.00 | 0.00 | | 1.50 | 86.64 | | 3.00 | 99.730 |
| 0.05 | 3.99 | | 1.55 | 87.89 | | 3.05 | 99.771 |
| 0.10 | 7.97 | | 1.60 | 89.04 | | 3.10 | 99.806 |
| 0.15 | 11.92 | | 1.65 | 90.11 | | 3.15 | 99.837 |
| 0.20 | 15.85 | | 1.70 | 91.09 | | 3.20 | 99.863 |
| | | | | | | | |
| 0.25 | 19.74 | | 1.75 | 91.99 | | 3.25 | 99.885 |
| 0.30 | 23.58 | | 1.80 | 92.81 | | 3.30 | 99.903 |
| 0.35 | 27.37 | | 1.85 | 93.57 | | 3.35 | 99.919 |
| 0.40 | 31.08 | | 1.90 | 94.26 | | 3.40 | 99.933 |
| 0.45 | 34.73 | | 1.95 | 94.88 | | 3.45 | 99.944 |
| | | | | | | | |
| 0.50 | 38.29 | | 2.00 | 95.45 | | 3.50 | 99.953 |
| 0.55 | 41.77 | | 2.05 | 95.96 | | 3.55 | 99.961 |
| 0.60 | 45.15 | | 2.10 | 96.43 | | 3.60 | 99.968 |
| 0.65 | 48.43 | | 2.15 | 96.84 | | 3.65 | 99.974 |
| 0.70 | 51.61 | | 2.20 | 97.22 | | 3.70 | 99.978 |
| | | | | | | | |
| 0.75 | 54.67 | | 2.25 | 97.56 | | 3.75 | 99.982 |
| 0.80 | 57.63 | | 2.30 | 97.86 | | 3.80 | 99.986 |
| 0.85 | 60.47 | | 2.35 | 98.12 | | 3.85 | 99.988 |
| 0.90 | 63.19 | | 2.40 | 98.36 | | 3.90 | 99.990 |
| 0.95 | 65.79 | | 2.45 | 98.57 | | 3.95 | 99.992 |
| | | | | | | | |
| 1.00 | 68.27 | | 2.50 | 98.76 | | 4.00 | 99.9937 |
| 1.05 | 70.63 | | 2.55 | 98.92 | | 4.05 | 99.9949 |
| 1.10 | 72.87 | | 2.60 | 99.07 | | 4.10 | 99.9959 |
| 1.15 | 74.99 | | 2.65 | 99.20 | | 4.15 | 99.9967 |
| 1.20 | 76.99 | | 2.70 | 99.31 | | 4.20 | 99.9973 |
| | | | | | | | |
| 1.25 | 78.87 | | 2.75 | 99.40 | | 4.25 | 99.9979 |
| 1.30 | 80.64 | | 2.80 | 99.49 | | 4.30 | 99.9983 |
| 1.35 | 82.30 | | 2.85 | 99.56 | | 4.35 | 99.9986 |
| 1.40 | 83.85 | | 2.90 | 99.63 | | 4.40 | 99.9989 |
| 1.45 | 85.29 | | 2.95 | 99.68 | | 4.45 | 99.9991 |