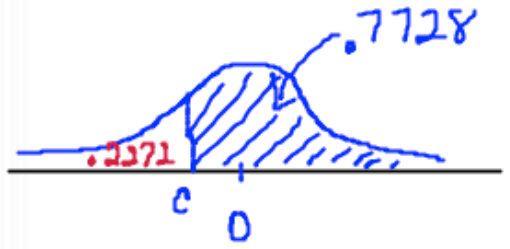
Popper 15

3. Find c such that $P(Z \geq c) = 0.7728$

probability

a. 0
b. .1
c. .748
d. −.748



$P(Z < c) = .2272$

invNorm (.2272)

or qnorm

Q9

Question 10

1-6

Win: 4, 5, 6
lose: 1, 2, 3

A game of chance is based on rolling a die two times in succession. The player wins if the larger of the two numbers is greater than 3. Which of the following situations would simulate 9 plays of this game?

a) Choosing 9 digits from the random number table (discarding 0,7,8, and 9).

34

b) Choosing 9 pairs of single digits from the random number table (discarding 0,7,8, and 9).

c) Choosing 54 digits from the random number table (discarding 0,7,8, and 9).

d) Choosing 2 single digits from the random number table (discarding 0,7,8, and 9).

e) None of the above

31. The following data indicates the number of hours a swimmer practiced during a week and his best time on the 50 meter free style that week.

expl. → L_1

Hrs practicing	2.5	4	4.5	6	7	7.5	8.5	9	11
Time/sec	29.33	28.76	28.01	27.96	27.99	27.35	27.02	26.85	26.09

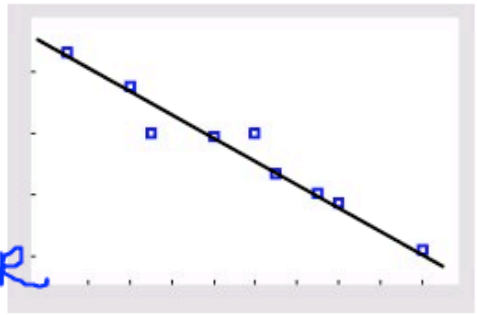
L_2 ← response

a. Identify the explanatory and response variables for this situation.
b. Create a scatterplot
c. Give the equation for the LSRL and plot the LSRL on the scatterplot
d. Find the correlation coefficient and the coefficient of determination. What do each of these tell you about the data?
e. Based on your answers to b and d, is this a good model? yes
f. Plot the residuals vs explanatory variables.
g. Based on your answer to f, do you still think your LSRL is the best model? yes
h. Find the residual value that corresponds to the explanatory variable value of 4.

Rstudio:
x = c(2.5, 4, ...
y = c(29.33, ..
plot(x, y)
lm(y ~ x)
cor(x, y)

b. scatterplot calculator: 2nd Statplot, make sure one plot on w/ L_1 & L_2 – GRAPH – Zoom 9

c. Stat – calc – 8
L_1, L_2, Y_1 <enter> (make sure diagnostic on)
↑ VARS – Y VARS – ENTER ENTER



LinReg
y=a+bx
a=30.10494253
b=-.3597413793
r^2=.9468430859 ← coeff. of determ.
r=-.9730586241 ← correlation

$\hat{y} = 30.105 - .36x$

Residuals :

$L_3 = L_2 - Y_1(L_1)$ <enter>

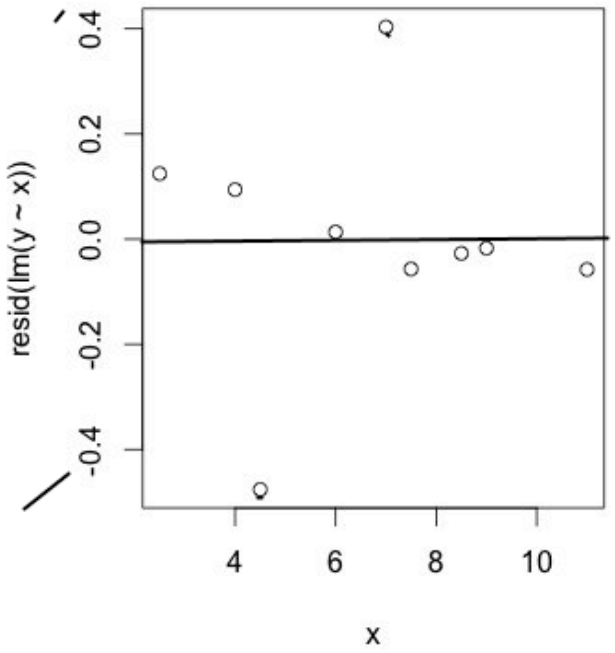
{ Stat plot L_1, L_3 (no Y_1)

```
> resid(lm(y~x))
         1          2          3          4
0.12441092 0.09402299 -0.47610632 0.01350575
         5          6          7          8
0.40324713 -0.05688218 -0.02714080 -0.01727011
         9
-0.05778736
```

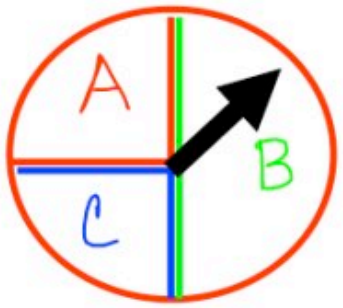
resid. for x=4

residual for x = 7.5 → 6th in list

plot (x, resid(lm(y~x)))



34. A game is played with the spinner below. If your spin lands on A, you win $1. If your spin lands on B, you lose $1. If the spinner lands on C, nothing happens. Ten people are playing the game.
    a. Using single digits from the random digit table, describe how you will run a simulation for the 10 players.
    b. Using line 120 from the random digit table, carry out the simulation 3 times.
    c. Based on your simulation, how many people won $1 for each run? How many lost $1?



P(A) = .25
P(B) = .50
P(C) = .25

01-25 = A
26-50 = BC
51-99,00 = B

Varies

0-9
0-4 = B
1-5 = B
A=? C=?

1-2 = A
3-6 = B
7-8 = C
toss out 0, 9

27. $X \sim N(82, 4)$

f. $P(X < x) = .97725$

probability

$2.0 = \frac{X - 82}{4}$

$8 = X - 82$

$90 = X$

invNorm $(.97725) = 2.0$

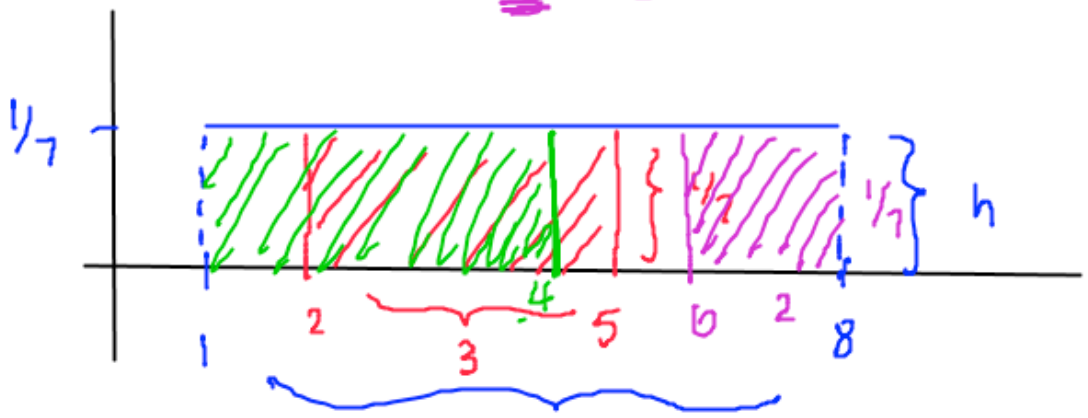
Z SCORE

invNorm $(.97725, 82, 4) = 90.0$

26. Consider a uniform density curve defined from x = 1 to x = 8.

a. What is the height of the "curve"?
b. What percent of observations fall between x=2 and x=5?
c. What percent of observations fall below x = 4?
d. What percent of observations fall above x = 6?
e. What percent of observations equal 7?

0



$A = b \cdot h$

$1 = 7h$

$h = 1/7$

$b = 8 - 1 = 7$

b. $P(2 < x < 5) = 3/7 = 42.86\%$

c. $P(x < 4) = 3/7 = 42.86\%$

d. $P(x > 6) = 2/7 = 28.57\%$

30. X ← distribution of a single sample μ, σ

$\bar{X}$ ← sampling distribution $\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$, $\mu_{\bar{x}} = \mu$

(all sample means from various samples all of size n)

---

ehw9

15. If the director selects 50 employees at random from throughout the company and categorizes their lunchtime practices by gender, she is:
    a. blocking for gender
    b. testing for a lurking variable
    c. promoting sexual harassment
    d. testing for bias
    e. none of these

Use the following information to answer questions 13-15:
A personnel director at a large company studied the eating habits of employees by watching the movements of a selected group of employees at lunchtime. The purpose of the study was to determine the proportion of employees who buy lunch in the cafeteria, bring their own lunches, or go out to lunch.

32. 1000 students were asked to give their favorite subject and favorite video game (chosen from a list). The results are recorded in this two-way table:

	Math	Science	English	Social Studies	
Zelda	66	70	40	35	
Final Fantasy	54	75	60	30	
Tomb Raider	35	50	80	90	
Assassin's Creed	45	40	60	100	
None of these	10	5	20	35	
					1000