

Quiz Tues Apr 9

9.2-9.4

Omit Suggested HW

10.2 #21, 23, 25

Omit Review Problems #43-45

10.2 Large Sample Confidence
Intervals for the Mean

Ex: 40 students were asked how much they studied the weekend before exams. The mean was 15.1 hours with a standard deviation of 6.5 hours.

Find a 99% Confidence interval for the average studying time.

$$n = 40$$

$$\bar{x} = 15.1$$

$$s = 6.5$$

$$(\sigma \approx s \approx 6.5)$$

$$z = 2.576 \text{ (table)}$$

$$\begin{aligned}\mu &= \bar{x} \pm \frac{z \sigma}{\sqrt{n}} \\ &= 15.1 \pm \frac{2.576 (6.5)}{\sqrt{40}} \\ &= 15.1 \pm 2.6\end{aligned}$$

$$12.5 \leq \mu \leq 17.7 \text{ hours}$$

Ex: The accepted value of μ is 4.15. Researchers recently found a 95% confidence interval for μ to be $4 \leq \mu \leq 5$. Does this support the accepted value?

Yes.

The accepted value is in the confidence interval.

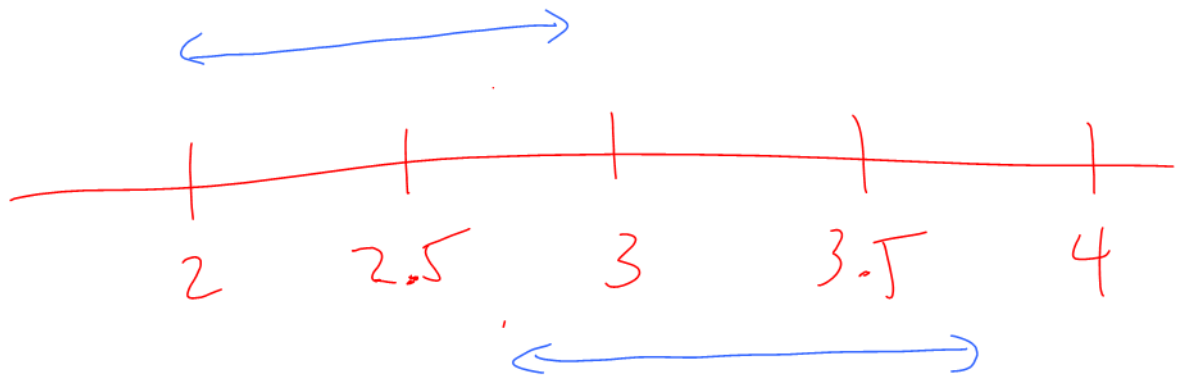
Ex: Two research groups
built 95% confidence intervals
for μ .

Group A: $2 \leq \mu \leq 2.89$

Group B: $2.75 \leq \mu \leq 3.64$

Is it possible that both groups
are correct?

Yes



The confidence intervals overlap.

Review Problems

① $103_4 \rightarrow \text{decimal}$

$$\begin{array}{c} 4^2 \\ \nearrow \\ 103_4 \\ \nearrow \quad \nearrow \\ 4^1 \quad 4^0 \end{array} = 1 \times 4^2 + 0 \times 4^1 + 3 \times 4^0 = 19$$

③ $AA.CC_{16} \rightarrow \text{decimal}$

$$\begin{array}{c} 16^1 \\ \nearrow \\ AA.CC_{16} \\ \nearrow \quad \nearrow \quad \nearrow \quad \nearrow \\ 16^0 \quad 16^{-1} \quad 16^{-1} \quad 16^{-2} \end{array}$$

$A = 10$
$B = 11$
$C = 12$

$$A \times 16^1 + A \times 16^0 + C \times 16^{-1} + C \times 16^{-2}$$

$$= 10 \times 16^1 + 10 \times 16^0 + \frac{12}{16} + \frac{12}{16^2}$$

$$\approx 170.797$$

⑤

$$172 \div 16$$

$$10 \div 16$$

	Q	R
	10	12 C
	0	10 A

10 = A
11 = B
12 = C

$$0.09375 \times 16$$

$$0.5 \times 16$$

	I	N
	1	0.5
	8	0

$$172.09375_{10} = AC.18_{16}$$

⑦

$$0.05 \times 2$$

$$0.1 \times 2$$

$$0.2 \times 2$$

$$0.4 \times 2$$

$$0.8 \times 2$$

$$0.6 \times 2$$

$$0.2 \times 2$$

	I	N
	0	0.1
	0	0.2
	0	0.4
	0	0.8
	1	0.6
	1	0.2

$$0.000011_2$$

$$(86) \quad 111101.101011_2$$

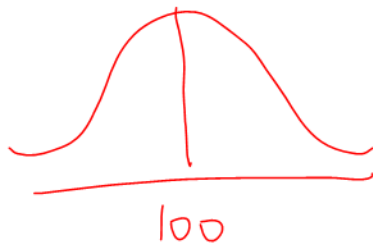
$$= 0011 \mid 1101.1010 \mid 1100$$

$$= 3 \quad D \quad . \quad A \quad C_{16}$$

$$= 3D.AC_{16}$$

Binary	Hexadecimal	Binary	Hex
0000	0	1000	8
0001	1	1001	9
0010	2	1010	A
0011	3	1011	B
		1100	C
		1101	D

(49) a)





log
greater than 50%.