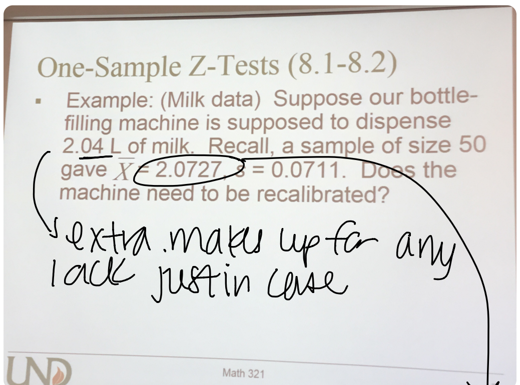
☆ minitab may help w/ hw from now on :)

sum of normal dist. variables = normal distr.

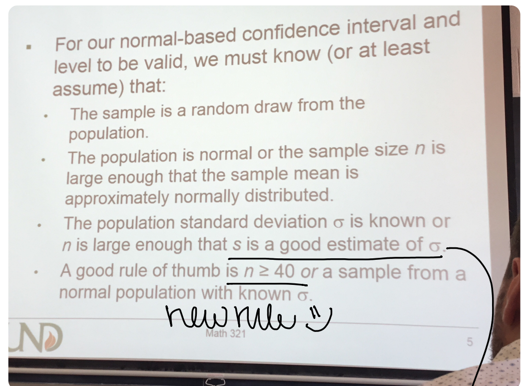
$$\sigma_T = \sqrt{\sigma_{x_1}^2 + \sigma_{x_2}^2 + \sigma_{x_3}^2}$$

Hypothesis Testing

One-Sample Z-Test



extra makes up for any lack just in case



new rule !! :)

pop. SD

may be too much

pop mean > 2.04?

recalibrate or just normal sampling var?

* assume machine works properly

→ null hyp - nothing is off

→ alt. hyp - $\mu \neq 2.04$, negation of null

$$Z = \frac{\bar{X} - \mu_0}{s/\sqrt{n}}$$ Z STAT EQUATION

Z = ??? :)

$H_0: \mu = 2.04$

$H_a: \mu \neq 2.04$

sample : 2.0727 ($\bar{X}$)

s = 0.0711

$n = 50$

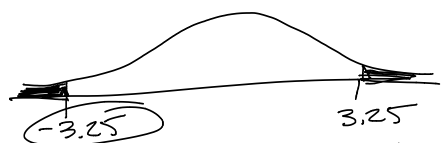
ZSCORE

$$\frac{2.0727 - 2.04}{0.0711/\sqrt{50}} = \boxed{3.25}$$

if H_0 true, $\bar{X} \sim N(\mu_0, \frac{s^2}{\sqrt{n}})$ + $Z \sim N(0,1)$

cut off point?

$P(|Z| \geq 3.25)$



↳ look upon chart

$\Phi\ -3.25 = 0.0006$

total $= 0.0012$

∴ H_0 is correct + sample was terrible

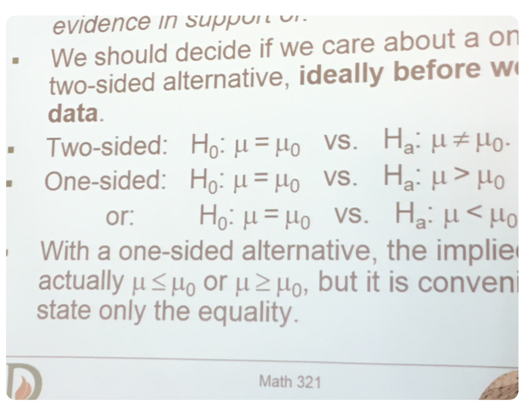
or

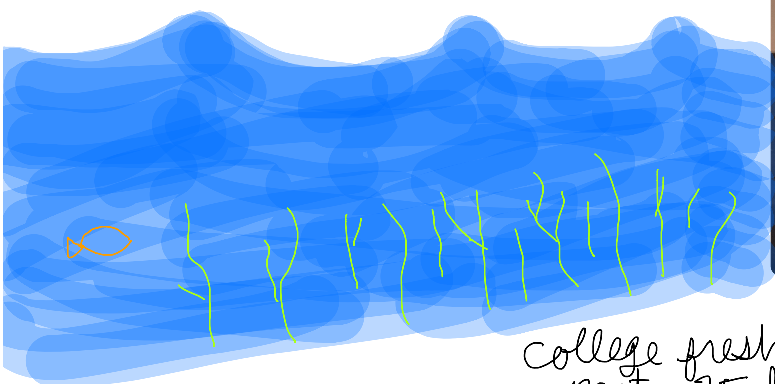
H_0 is wrong $(\mu \neq 2.04)$

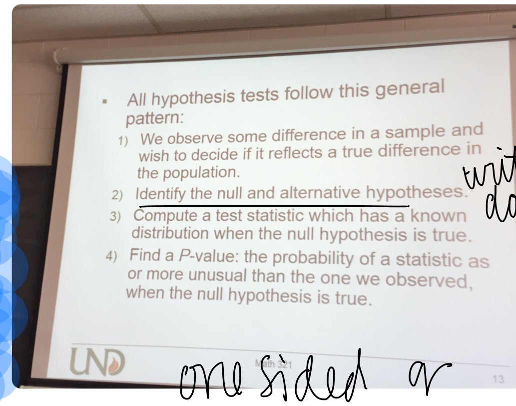
since P is so small, ∴ machine needs recalibration

strong evidence machine is not working properly +

study distributions (normal vs. binomial)







write down

one sided or 2 sided?

Before data gathered

college freshmen party 7.5 hours weekly (nat'l average)

$H_0: \mu = 7.5$

$H_a: \mu < 7.5$