

681: 7-8, 11-15, 28-29, 54-55

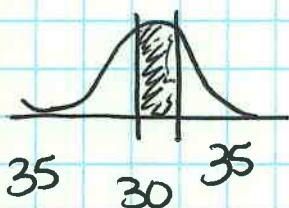
7 find z , $X=32$, $\mu=38$, $\sigma=2.8$

$$z = \frac{32-38}{2.8} = \boxed{-2.143}$$

8. find X if $z=1.7$, $\mu=49$, $\sigma=4.1$

$$1.7 = \frac{X-49}{4.1} \quad 6.97 = X-49 \quad \boxed{X=55.97}$$

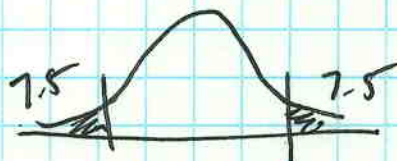
11. InvNorm $\text{InvNorm}(.35) = -.385$



$\text{InvNorm}(.65) = .385$

$$-.385 \leq z \leq .385$$

12. $\text{InvNorm}(.075) = -1.439$
 $\text{InvNorm}(.925) = 1.439$



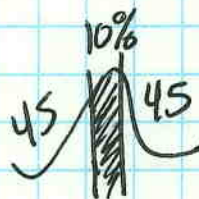
$$-1.439 > z \text{ \& \; } 1.439 < z$$

13. $\text{InvNorm}(.20) = -.842$
 $\text{InvNorm}(.8) = .842$



$$-.842 > z \text{ \& \; } z > .842$$

14. $\text{InvNorm}(.45) = -.126$
 $\text{InvNorm}(.55) = .126$



$$-.126 < z < .126$$

15. $\text{InvNorm}(.125) = -1.150$
 $\text{InvNorm}(.875) = 1.150$



$$-1.150 > z \text{ \& \; } z < 1.150$$

28. City's humidity, Normally distributed

City	Hum	μ Hum	σ
Chicago	85%	82%	12%
Orlando	94%	91%	15%
Phoenix	46%	43%	10%
New	81%	78%	8%

a) Which city has the highest humidity?

Compare z-values

$$z_c = \frac{85-82}{12}$$

$$= .25$$

$$z_o = \frac{94-91}{15}$$

$$= .2$$

$$z_p = \frac{46-43}{10}$$

$$= .3$$

highest rel humidity is phoenix

b) $z_n = \frac{81-78}{8} = .375 \rightarrow$ higher than Phoenix

29. Salary - normal dist $\sigma = \$8000$
Employees who earn less than \$35,000 get basket.

a. 10% receive a gift basket.
What is the mean salary

$$\text{Inv Norm}(.10) = -1.282 = z$$

$$z = \frac{X - \mu}{\sigma} \quad -1.282 = \frac{35000 - \mu}{8000} \quad -10,252 = 35000 - \mu$$

$$\mu = 45252$$

Average Salary is \$45252

b. \$10000 greater than mean = 55252 get bonus

200 employees, how many get bonus

$$z = \frac{55252 - 45252}{8000} = 1.25 \quad \text{Normcdf}(-99, 1.25) = .8944$$



54. ACT $\mu = 21.0$ $\sigma = 4.7$ $X = 30.2$

$$z = \frac{30.2 - 21}{4.7} = 1.95 \quad \text{Normcdf}(-99, 1.95)$$

$$= .9744 \approx 97.5\%$$

J

55. Song length normal dist

$$\mu = 4.12 \quad \sigma = 0.68 \quad P(>5) \quad \text{Normcdf}(-99, 1.294)$$

$$X = 5 \quad z = \frac{5 - 4.12}{.68} = 1.294 \quad = .902$$

A - 10%