

AFM HW 3 Z-scores & Emp. Rule

① $\bar{x} = 70$ $s_x = 5$

② $z = \frac{80-70}{5} = 2$

③ $z = \frac{62-70}{5} = -1.6$

④ $1.3 = \frac{x-70}{5}$

$6.5 = x-70$

$76.5 = x$ or can round up to 77

② MC: $\bar{x} = 90$ $s_x = 4$
friend = 91

FV: $\bar{x} = 86$ $s_x = 3$
yours = 90

who did better?

$z = \frac{91-90}{4} = .25$

$z = \frac{90-86}{3} = 1.33$

You did better 😊

② a $-2.5 = \frac{x-86}{3}$

$-7.5 = x-86$

$78.5 = x$
or round up to 79

② b $-1.4 = \frac{x-90}{4}$

$-5.6 = x-90$

$84.4 = x$ or
round down to 84

③ c 80 at MC:

$z = \frac{80-90}{4} = -2.5$

80 at FV:

$z = \frac{80-86}{3} = -2$

$\bar{x} = 20$ $s_x = 3$

a) $z = \frac{27-20}{3} = 2.33$

b) $-2.3 = \frac{x-20}{3}$

$-6.9 = x - 20$

$13.1 = x$

so **13** passes were completed

c) $z = \frac{20-20}{3} = 0$

his z-score is 0 b/c he is no standard deviations away from the mean... he is the same as the mean!

4) Clerical Ability	-0.6
Logical Reasoning	1.75
Mechanical Ability	-0.8
Numerical Reasoning	.5
Spatial Relations	1
Verbal Fluency	1.67

Best: Logical Reasoning

Worst: Mechanical Ability

5) $\bar{x} = 1.97$

med = 2

mode = 0

6) $\bar{x} = \$37,142.86$
 $s_x = \$17,490.81$

The average salary is about \$37,000, and most people are making within the range of \$19,500 to \$54,500 (add/sub st. dev)

⑦ NCSU

$$\bar{x} = 75$$

$$s_x = 15$$

$$\frac{15}{75} = .2$$

* find the coefficient of variation*

St dev
mean

$$\bar{x} = 65$$

$$s_x = 10$$

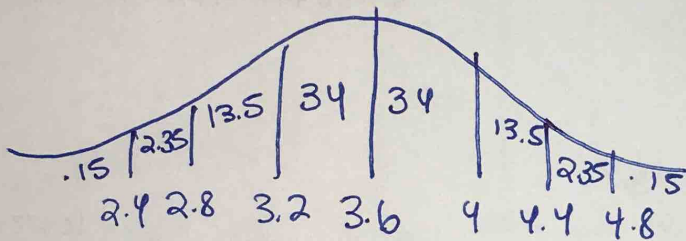
$$\frac{10}{65} = .15$$

20%

15%

So NCSU is more volatile/unstable.

⑧

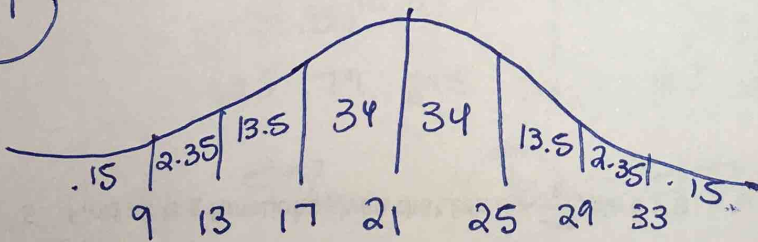


a) 97.35%

b) .15%

c) $(.475)(23) = 10.925$
~ 11 kittens

⑨



a) 2.5%

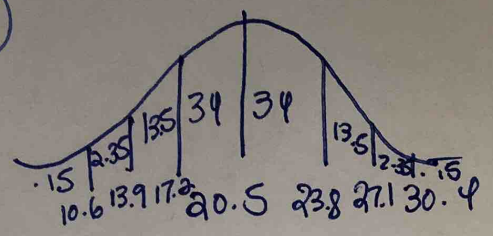
b) $(.025)(65) = 1.625$
~ 2 students

c) 97.5% d) $(.975)(65) = 63.375$
~ 63 students

e) 95% f) $(.95)(65) = 61.75$
~ 62 students

g) 84% h) $(.84)(65) = 54.6$
~ 55 students

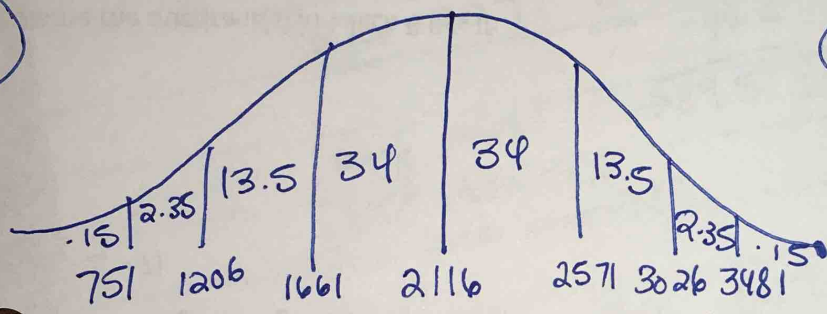
10



- a) 2.35%
- b) 97.5%

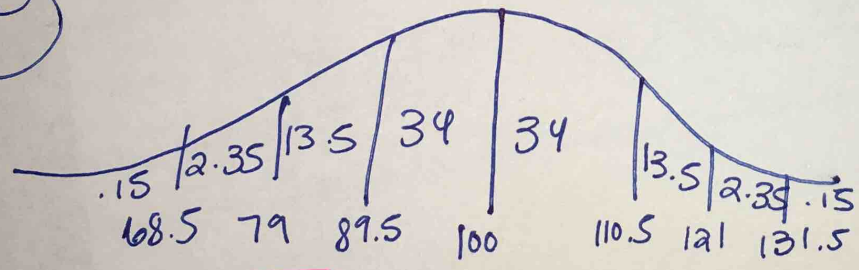
c) percentile means who you did better than... in this case it means what % of snakes you lived longer than.
 Z-score of 1 means it lived to be 23.8 yrs old so it outlived 84% of snakes.

11



- a) 16%
- b) 97.5%
- c) 2.35%

12



- a) 81.5%
- b) 2.5%
- c) 15.85%