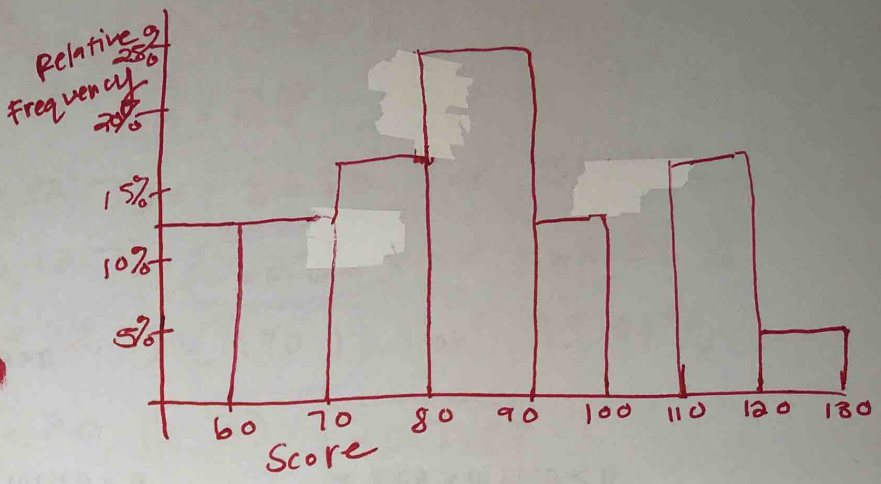
# AFM Statistics Review

① 

| Score | Freq. | Rel Freq. |
|---|---|---|
| 50-60 | 3 | 12.5% |
| 60-70 | 3 | 12.5% |
| 70-80 | 4 | 16.7% |
| 80-90 | 6 | 25% |
| 90-100 | 3 | 12.5% |
| 100-110 | 0 | 0% |
| 110-120 | 4 | 16.7% |
| 120-130 | 1 | 4.2% |




② $\bar{x} = 94.5$ median = 92 mode = 110

I would use the mode b/c it shows the highest $ amount earned which would make someone want to work there.

③ $70 = \frac{65+73+57+62+x}{5}$

$350 = 257 + x$

$x = 91$

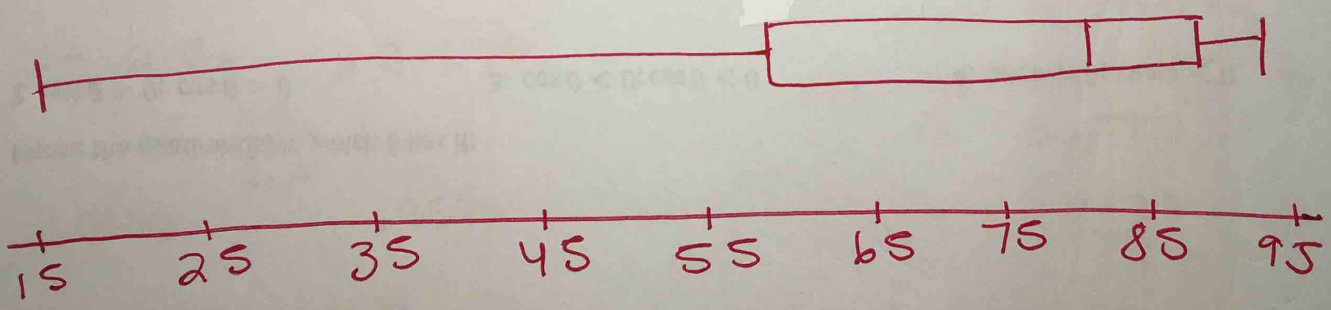
④ min: 15 Q1: 56 med: 78 Q3: 88 max: 93

IQR: 88-56 = 32

32(1.5) = 136

56 − 136 = −80 *no low outliers

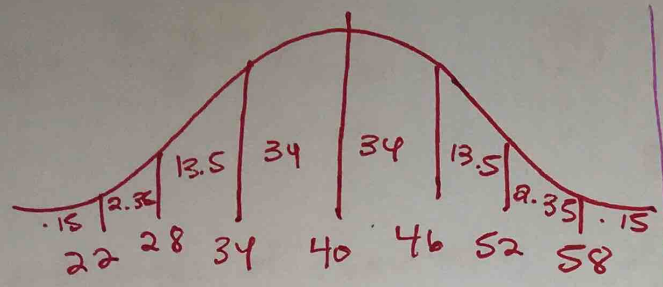
88 + 136 = 224 *no high outliers




⑤ $\bar{x} = 12$

St dev = 3.496

(6)

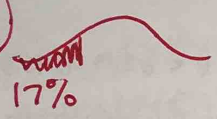



(a) 16%
(b) 2.5%
(c) 97.35%
(d) 28

(7) (a) normcdf(210, 230, 220, 12.7) = .5690 or 56.9%

(b) normcdf(216, 5BN, 220, 12.7) = .6236 or 62.36%

(c) normcdf(0, 249.6, 220, 12.7) = .9901 or 99.01%

(d) 

invnorm(.17, 220, 12.7) = 207.88

(e) 

invnorm(.72, 220, 12.7) = 227.4

(8) (a) $z = \frac{80-82}{4}$ look up on table

$z = -.5$

.3085 or 30.85%

(b) $z = \frac{75-82}{4}$ look up on table

$z = -1.75$

.0401 ★ must subtract from 1 b/c it says higher than a 75

1 − .0401

.9599

(c) ★ find z-scores & probabilities for each ★

$z = \frac{72-82}{4}$ $z = \frac{89-82}{4}$

$z = -2.5$ look up in table $z = 1.75$

.0062 .9599

.9599 − .0062

.9537

(d) 

★ look inside table for .78

closest value to .78 in the table is .7794

the corresponding z-score is 0.77

$0.77 = \frac{X-82}{4}$

$3.08 = X - 82$

$85.08 = X$

(9) $z = \frac{90-82}{5} = 1.6$

(10) $1.2 = \frac{x-80}{7}$

$8.4 = x - 80$

$x = 88.4$

(11) *coefficient of variation → $\frac{\text{st dev}}{\text{mean}}$ = ___ %

CAMERA: $\frac{4.17}{150} = .0278 = 2.78\%$

RENOVATION: $\frac{3400}{93500} = .0364 = 3.64\%$

The Renovation is more volatile b/c the coefficient of variation is higher which means it varies more.

(12) (A) Observational Study → the researcher did not impose a treatment

(B) Experiment → Researcher imposes a treatment, there is a control group

(13) (a) STRATIFIED. Divided into subgroups, people are then randomly selected from each subgroup.

(b) CLUSTER. Divided into subgroups, one entire subgroup is chosen.

(15) (a) Yes → people in line for a football game will probably like sports.

(b) Yes → By beginning the question with "lack of textbooks and shortage of teachers" then stating "spend additional money" the researcher is discouraging the responder from wanting to spend money on sports.

(c) Yes → Is 1 high or low? People also have different concepts of likeness.

(16) invnorm(.95, 110, 15) = 134.67

5% more

(17) $z = 1.43$ → .9236 | $z = -0.03$ → .4880 | $z = 3.21$ → .9993 | $z = -2.97$ → .0015 | $z = -1.89$ → .0294

(18) bottom 45% → look for .45 → closest value → .4483 → $z = -0.13$

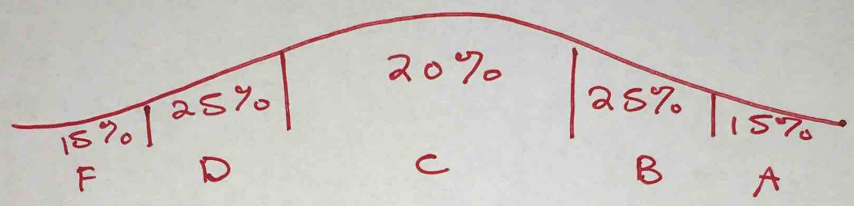
top 11% → look for .89 → closest value → .8907 → $z = 1.23$

bottom 23% → look for .23 → closest value → .2296 → $z = -0.74$

top 16.5% → look for .835 → closest value → .8340 → $z = 0.97$

top 62.5% → look for .375 → closest → .3745 → $z = -0.32$

(19)




(a) bottom 15%

invnorm(.15, 84, 5) = 78.82

(b) top 15%

invnorm(.85, 84, 5) = 89.18

(c) C

invnorm(.4, 84, 5) = 82.73
invnorm(.6, 84, 5) = 85.27

between 82.73 and 85.27

(d) B

invnorm(.6, 84, 5) = 85.27
invnorm(.85, 84, 5) = 89.18

between 85.27 and 89.18

(20)

Battery Life Results

Brand "A"

| | | |
|---|---|---|
| | 7 | 0 |
| 9 7 7 5 5 | 0 | 1 |
| 7 6 2 2 | 0 | 2 |
| 8 6 4 2 | 0 | 3 |
| | | 4 |
| | 6 | 5 |
| | | 6 |
| | 5 | 7 |

Brand "B"

| | | |
|---|---|---|
| 5 7 8 8 | | |
| 0 1 4 7 9 | | |
| 1 2 2 2 | | |
| 0 2 4 6 8 | | |
| | 1 | |