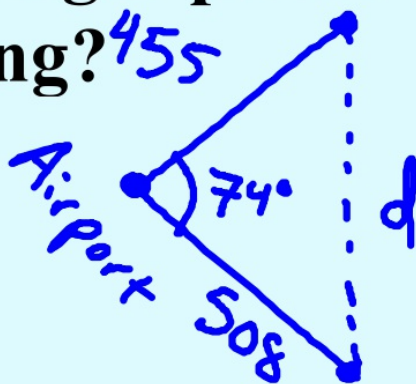


1) The probability of having a girl in a community is 0.54. What is the probability of having 3 consecutive girls? $(0.54)^3 = 0.54 \cdot 0.54 \cdot 0.54 = \boxed{0.16}$

2) In a game there is a 70% chance of landing on green. What is the probability of landing on green exactly 5 times on the next 8 turns? ${}^8C_5 \left(\frac{7}{10}\right)^5 \left(\frac{3}{10}\right)^3$
Answer $\boxed{0.25}$

3) Two planes leave an airport. One flew 455 miles, the other 508 miles. There is a 74° angle between their flight paths. How far apart are the planes at landing?



$$d^2 = 455^2 + 508^2 - 2(455)(508) \cos 74$$

$\sqrt{\text{Ans}}$

$$\boxed{d = 581.1 \text{ mi.}}$$

Unit 6: Statistics

Univariate Data

Regression Lines

The twelve test scores from a small class are listed below:

L_1

54, 75, 55, 62, 65, 59, 61, 62, 98, 82, 84 and 78

a) What is the mean? \bar{x} 69.58

b) What is the median? Med 63.5

c) What is the mode? $Repeated\ Scores$ 62

d) What is the standard deviation? σ_x 13.06

e) What is the range? 98-54 = 44
 $max - min$

f) What is the IQR? 80-60 = 20
 $Q_3 - Q_1$

The twelve test scores from a small class are listed below:

54, 75, 55, 62, 65, 59, 61, 62, 98, 82, 84 and 78

g) What measure of center should the teacher use to make students think the class did poorly? Why?

Mean / Median / Mode lowest

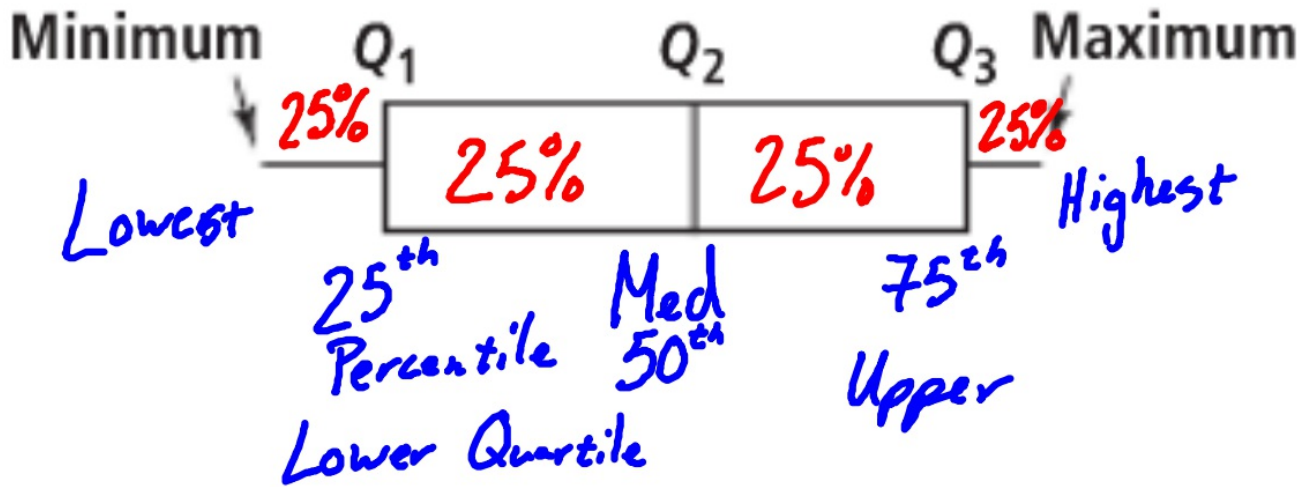
h) What measure of center should the teacher use to make administrators think the class did well? Why?

Mean, highest

Statistics

Box Plots, and Normal Distribution

Measures of Center
Measures of Spread



Box Plot

Last 5 values in the 1-Var Stats

34 61 68 73 79 83 86 86 91 94

Mean: 75.5

Range: 60

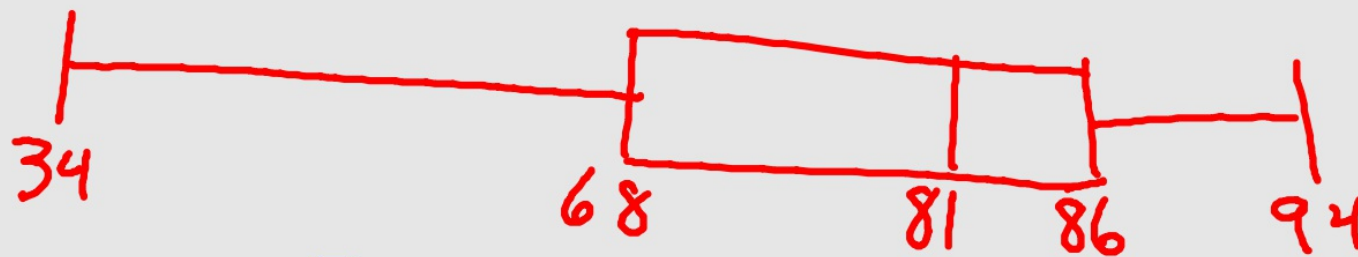
Median: 81

IQR: 18

Mode: 86

S.D.: 16.93

Box Plot (5 Number Summary):



Outlier?

$$IQR \cdot 1.5$$

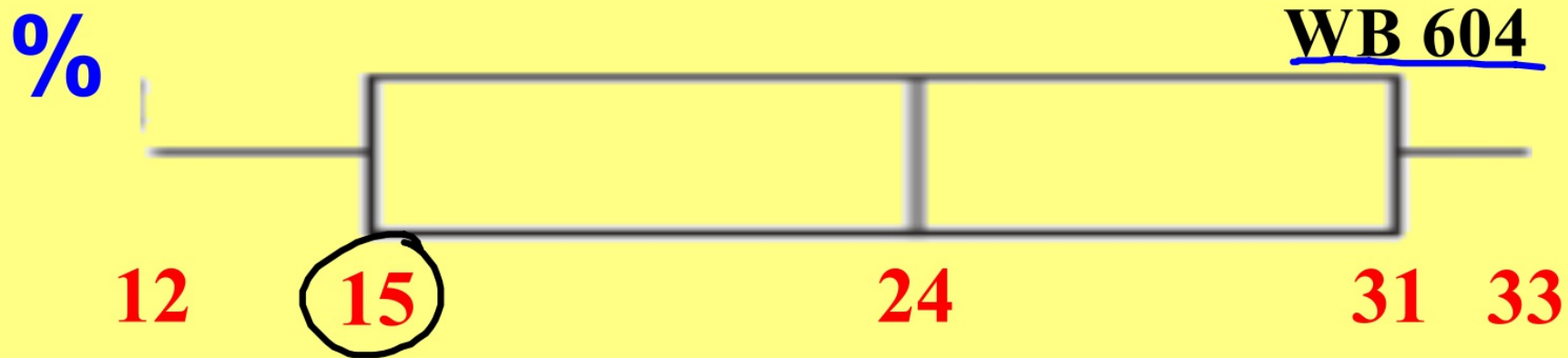
$$18(1.5) = 27$$

$$68 - 27 = 41$$

$$86 + 27 = 113$$

34

On



Above are the MPG for a variety of cars.

1) What % of cars use better than 15 MPG?

75%

2) If 160 cars were sampled, how many cars have between 24 and 31 MPG?

$$25\% \\ 0.25(160) = \text{40 cars}$$

3) What is the 75th percentile value?

3rd Quartile

31 MPG

%



1) What percent of students scored above an 87?

25%

2) What is the median?

80

3) What is the mean?

Cannot Determine

4) What else can we determine?

Range, IQR

Mode + S.D.

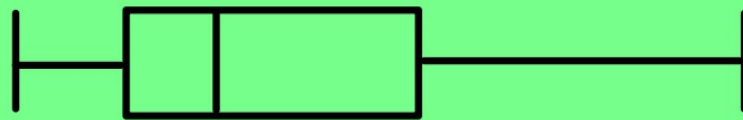
5) If 80 students were tested, how many students scored between a 72 and 80?

$$0.25(80) = 20 \text{ students}$$

Skewed (Longer Leg)



Symmetric
Mean \approx Median



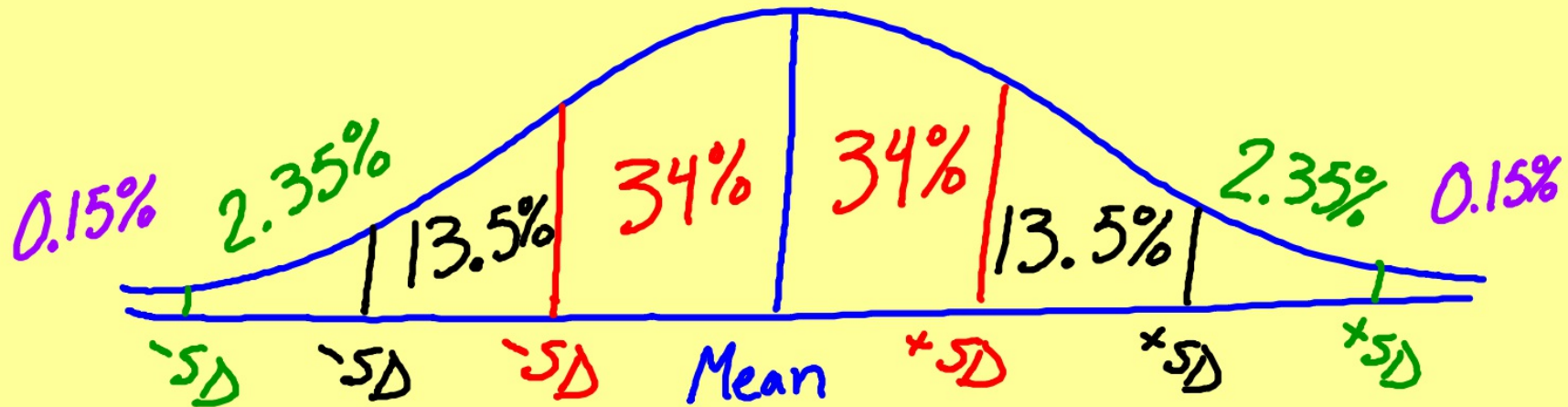
Skewed Right
Mean $>$ Med



Skewed Left
Mean $<$ Med

Distribution Curves

Normal Distributions



★ $0.15\% = 0.0015$

1) The heights of players in a basketball league are normally distributed with a mean of 6 feet 1 inch and a standard deviation of 2 inches.

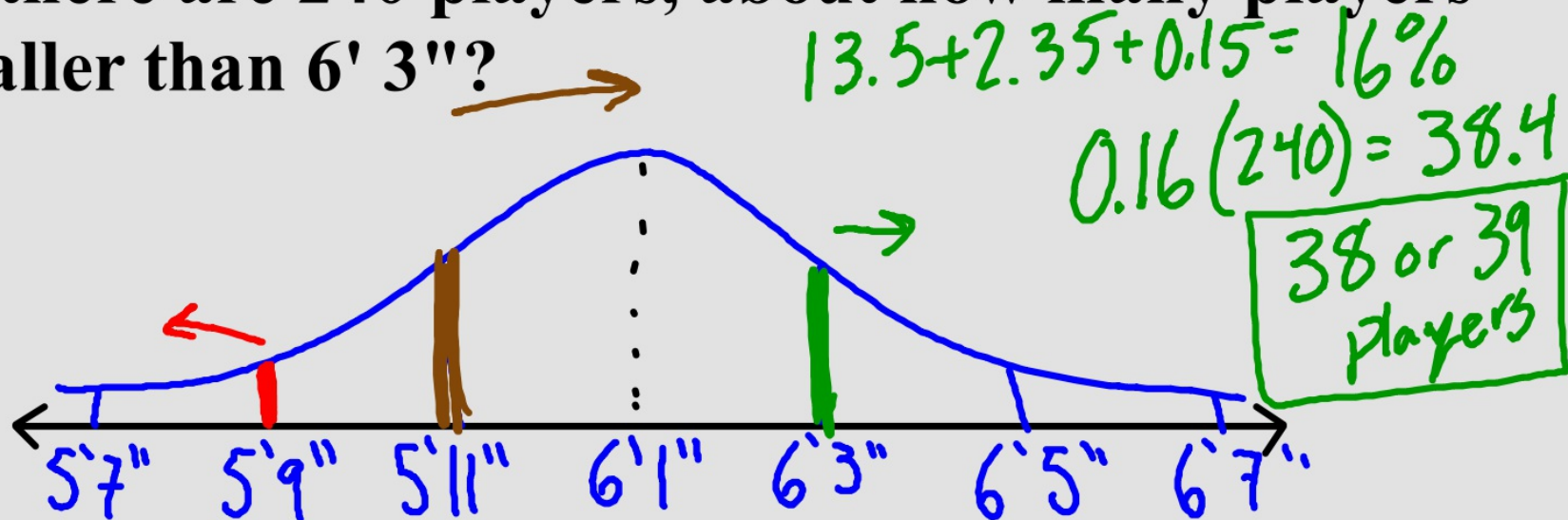
a. What is the probability that a player selected at random will be shorter than 5' 9"?

$$2.35\% + 0.15\% = \boxed{2.5\%}$$

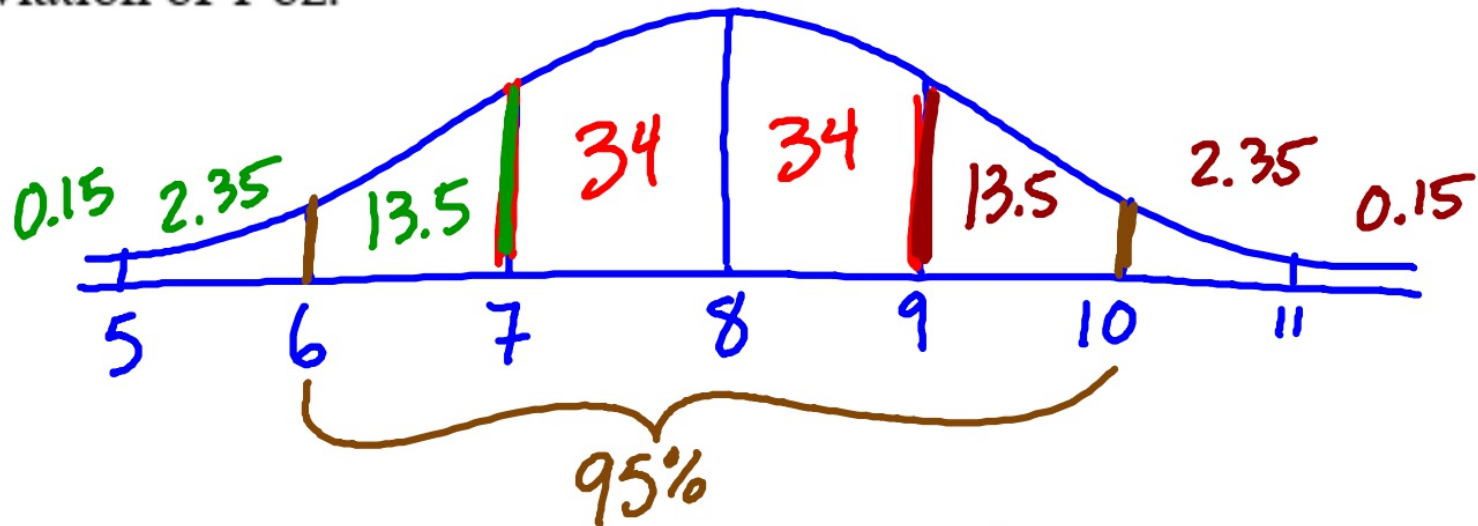
b. What percent of players are taller than 5' 11"?

$$34 + 34 + 13.5 + 2.35 + 0.15 = \boxed{84\%}$$

c. If there are 240 players, about how many players are taller than 6' 3"?



2) A snack company makes bags of chips with a mean of 8 oz. and a standard deviation of 1 oz.



a. What percent of bags will be between 7 and 9 oz?

68%

b. What percent of bags will be under 7 oz?

16%

c. If the company makes 1000 bags each day, how many bags would be made with more than 9 oz?

16% 160 bags

d. ... if the company can only sell bags between 6 and 10 oz, how bags will they be able to sell each day?

0.95(1000) = 950

Assignment:
WB 603 E.C.
WB 604 All