

**Warm Up** A snack company makes bags of chips with a mean of 12 oz. and a S.D. of 2 oz.

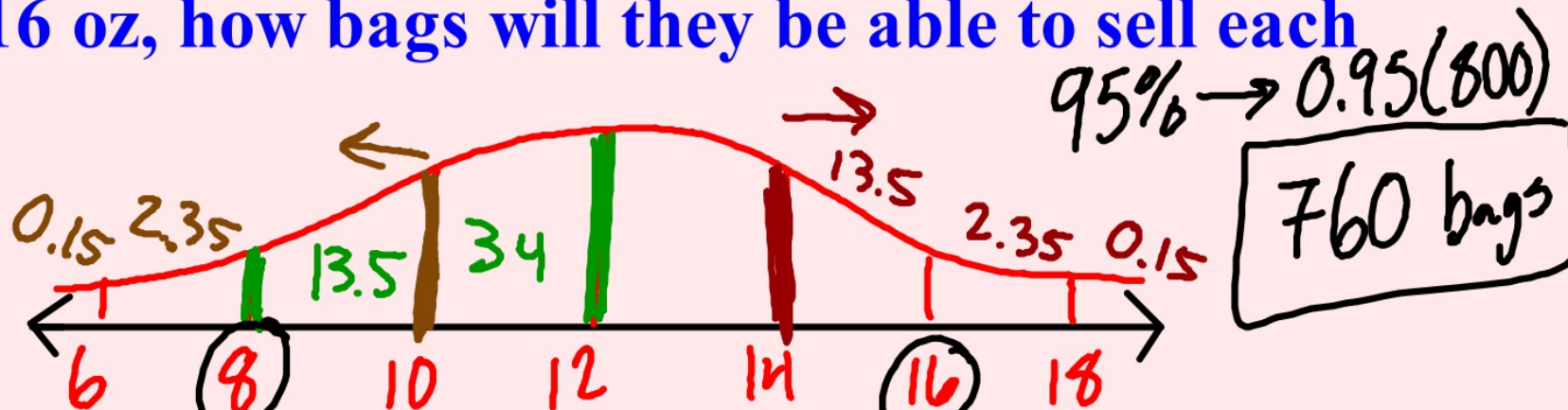
a. What percent of bags will be between 8 & 12 oz?  
47.5%

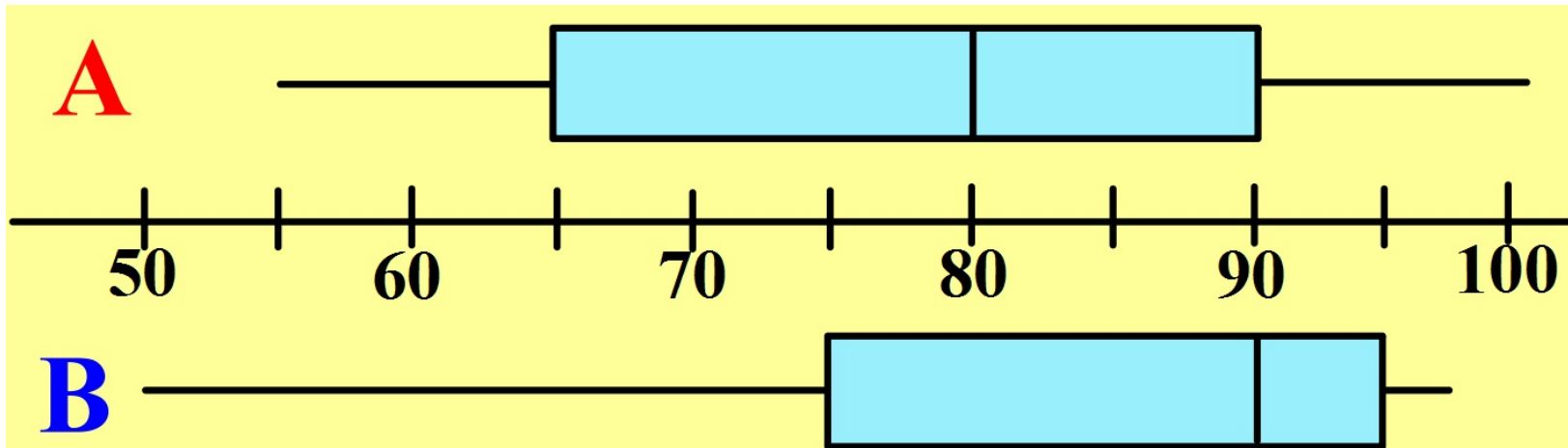
b. What percent of bags will be under 10 oz?  
16%

c. If the company makes 800 bags each day, how many bags would be made with more than 14 oz?

$$16\% \rightarrow 0.16(800) = 128 \text{ bags}$$

d. ... if the company can only sell bags between 8 and 16 oz, how many bags will they be able to sell each day?





Approximate each of the following:

1) The 5 number summary for each class.

**A** 55/65/80/90/100 **B** 50/75/90/95/97

2) The Range and IQR for each class.

**A** 45 25 **B** 47 20

3) Which class has the best individual performance?

*A, higher max*

4) Which class has the better overall performance?

*B, 50% got an A*

Tom's class had a normal distribution and a mean score of 78 on the last test with a standard deviation of 4 points.

2) What percent of student's would have scored between a 74 and 82 on the test?

**68%**

3) If 2000 students have taken that test how many would be expected to have scored an A (above a 90)?

**3**

$$0.15\% \rightarrow 0.0015(2000) =$$

4) ... how many would be expected to have scored between a 70 and 78?

**950**

$$13.5 + 34 = 47.5\%$$
$$0.475(2000)$$



**DELIVERY** For Exercises 5–7, use the following information.

The time it takes a bicycle courier to deliver a parcel to his farthest customer is normally distributed with a mean of 40 minutes and a standard deviation of 4 minutes.

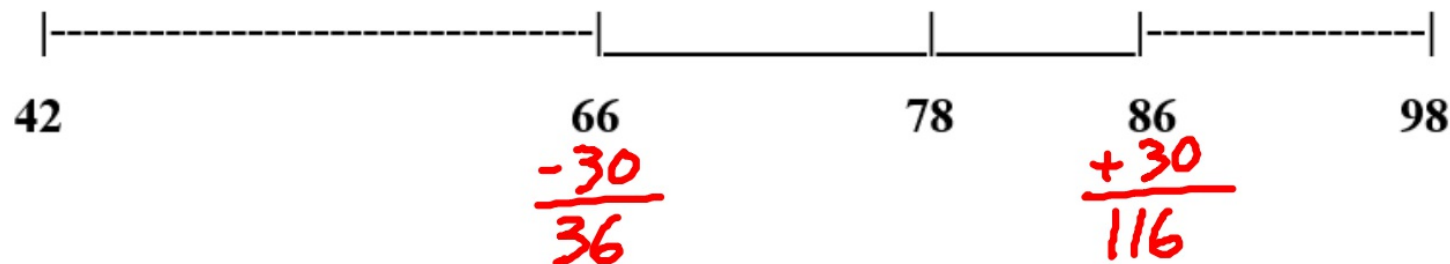
5. About what percent of the courier's trips to this customer take between 36 and 44 minutes?  
**68%**
6. About what percent of the courier's trips to this customer take between 40 and 48 minutes?  
**47.5%**
7. About what percent of the courier's trips to this customer take ~~less~~ *more* than 32 minutes? ~~2.5%~~ **97.5%**

**TESTING** For Exercises 8–10, use the following information.

The average time it takes sophomores to complete a math test is normally distributed with a mean of 63.3 minutes and a standard deviation of 12.3 minutes.

8. About what percent of the sophomores take more than 75.6 minutes to complete the test?  
**16%**
9. About what percent of the sophomores take between 51 and 63.3 minutes? **34%**
10. About what percent of the sophomores take less than 63.3 minutes to complete the test?  
**50%**

Creed has a lecture hall of 300 students for computer science. After testing his students he created the following box plot:

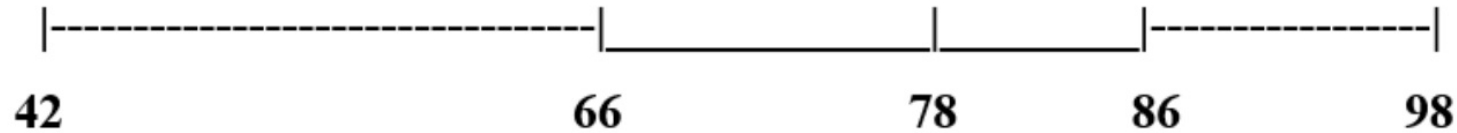


Answer the following questions about Creed's students' test scores (hint: some questions cannot be answered off of a box plot);

- 11) What is the mean?                     —
- 12) What is the median?                     78
- 13) What is the mode?                     —
- 14) What is the range?                     56
- 15) What is the IQR?                     26
- 16) What is the standard deviation?                     —
- 17) Is there an outlier?                     No

⑰  $20(1.5) = \underline{\underline{30}}$   
IQR

Creed has a lecture hall of 300 students for computer science. After testing his students he created the following box plot:



Answer the following questions about Creed's students' test scores (hint: some questions cannot be answered off of a box plot);

18) Is the plot skewed left, skewed right or symmetric?

Left

19) What percent of students scored above a 66?

75%

20) What percent of students scored between a 78 and 86?

25%

21) What percent of students scored below the median?

50%

22) How many student scored above a 78?

50% → 0.5(300) = 150 students

23) How many students scored between a 66 and 86?

150 students

24) How many students scored above the 3<sup>rd</sup> quartile?

75 students

## Unit 6: Statistics

# Mixed Practice

Measures of Center  
Measures of Spread

Box Plots  
Normal Distributions

## How / when to use each measure...

**Mean** - in the presence of an outlier the mean is misleading and not a good indicator of the group

**Median** - not affected by an outlier but does not consider how spread out values are

**Mode** - only useful if there is a lot of repetition



Find the mean, median and mode for each of the following. Then determine which you think is the best representation of the overall group:

1) 75, 75, 76, 78, 79, 80, 81, 82, 84, 110 <sup>Outlier</sup>  
Mean: 82 Med: 79.5 ~~Mode: 75~~ Best:

2) 28, 52, 70, 78, 84, 100, 100, 100, 100, 100  
Mean: 81.2 Med: 92 Mode: 100 Best:

3) 60, 62, 63, 63, 88, 92, 93, 95, 96, 97  
Mean: 80.9 Med: 90 Mode: 63 Best:

## And for measures of spread...

Range and S.D. are both heavily affected by outliers, IQR is the only one that is not.

## **Assignment::**

**WB 605 Due Wed**

**All**

**WB 606 Due Thu**

**#1-20; E.C. #21**

**WB 608 Due Fri**

**WB 603 (EC) Due Fri**

**Ask questions if  
you have them.**

**We will start the  
quiz in 10  
minutes**

**Quiz Today on Just New Topics Since  
Last Quiz**