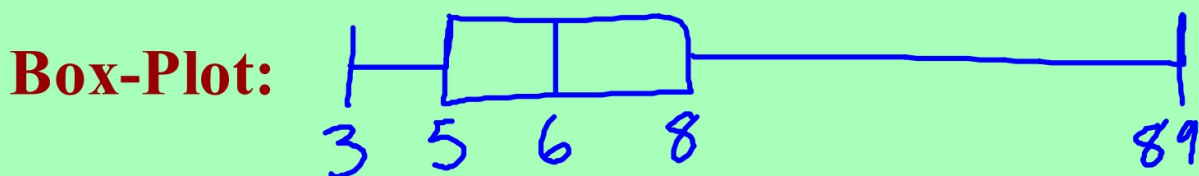


## Warm Up

{5, 8, 8, 6, 7, 5, 4, 3, 5, 6, 4, 7, 12, 89}

**Mean:** 12.071    **Median:** 6    **Mode:** 5  
**SD:** 21.446    **Range:** 86    **IQR:** 3



**Outlier?** 89

## 2-6 Skills Practice

### Statistical Measures

#1

Find the variance and standard deviation of each set of data to the nearest tenth.

1. {32, 41, 35, 35, 46, 42}

**Mean:** 38.5

2. {13, 62, 77, 24, 38, 19, 88}

**Median:** 38

3. {89, 99, 42, 16, 42, 71, 16}

**Mode:** 35

4. {450, 400, 625, 225, 300, 750, 650, 625}

**Range:** 14

5. {17, 23, 65, 94, 33, 33, 33, 8, 57, 75, 44, 12, 11, 68, 39}

**IQR:** 7

6. {7.2, 3.1, 3.8, 9.5, 8.3, 8.4}

**S.D.:** 4.856

7. {1.5, 2.5, 3.5, 4.5, 4.5, 5.5, 6.5, 7.5}

## 2-6 Skills Practice

### Statistical Measures

#2

Find the variance and standard deviation of each set of data to the nearest tenth.

1. {32, 41, 35, 35, 46, 42}

Mean: **45.857**

2. {13, 62, 77, 24, 38, 19, 88}

Median: **38**

3. {89, 99, 42, 16, 42, 71, 16}

Mode: **none**

4. {450, 400, 625, 225, 300, 750, 650, 625}

Range: **75**

5. {17, 23, 65, 94, 33, 33, 33, 8, 57, 75, 44, 12, 11, 68, 39}

IQR: **58**

6. {7.2, 3.1, 3.8, 9.5, 8.3, 8.4}

S.D.: **27.638**

7. {1.5, 2.5, 3.5, 4.5, 4.5, 5.5, 6.5, 7.5}

## 2-6 Skills Practice

### Statistical Measures

#3

Find the variance and standard deviation of each set of data to the nearest tenth.

1. {32, 41, 35, 35, 46, 42}

Mean: **53.571**

2. {13, 62, 77, 24, 38, 19, 88}

Median: **42**

3. {89, 99, 42, 16, 42, 71, 16}

Mode: **16 and 42**

4. {450, 400, 625, 225, 300, 750, 650, 625}

Range: **83**

5. {17, 23, 65, 94, 33, 33, 33, 8, 57, 75, 44, 12, 11, 68, 39}

IQR: **73**

6. {7.2, 3.1, 3.8, 9.5, 8.3, 8.4}

S.D.: **30.969**

7. {1.5, 2.5, 3.5, 4.5, 4.5, 5.5, 6.5, 7.5}

## 2-6 Skills Practice

### Statistical Measures

#4

Find the variance and standard deviation of each set of data to the nearest tenth.

1. {32, 41, 35, 35, 46, 42}

**Mean: 503.125**

2. {13, 62, 77, 24, 38, 19, 88}

**Median: 537.5**

3. {89, 99, 42, 16, 42, 71, 16}

**Mode: 625**

4. {450, 400, 625, 225, 300, 750, 650, 625}

**Range: 525**

5. {17, 23, 65, 94, 33, 33, 33, 8, 57, 75, 44, 12, 11, 68, 39}

**IQR: 287.5**

6. {7.2, 3.1, 3.8, 9.5, 8.3, 8.4}

**S.D.: 174.749**

7. {1.5, 2.5, 3.5, 4.5, 4.5, 5.5, 6.5, 7.5}

## 2-6 Skills Practice

### Statistical Measures

#5

Find the variance and standard deviation of each set of data to the nearest tenth.

1. {32, 41, 35, 35, 46, 42}

**Mean: 40.8**

2. {13, 62, 77, 24, 38, 19, 88}

**Median: 33**

3. {89, 99, 42, 16, 42, 71, 16}

**Mode: 33**

4. {450, 400, 625, 225, 300, 750, 650, 625}

**Range: 86**

5. {17, 23, 65, 94, 33, 33, 33, 8, 57, 75, 44, 12, 11, 68, 39}

**IQR: 48**

6. {7.2, 3.1, 3.8, 9.5, 8.3, 8.4}

**S.D.: 25.114**

7. {1.5, 2.5, 3.5, 4.5, 4.5, 5.5, 6.5, 7.5}

## 2-6 Skills Practice

### Statistical Measures

#6

Find the variance and standard deviation of each set of data to the nearest tenth.

1. {32, 41, 35, 35, 46, 42}

Mean: 6.717

2. {13, 62, 77, 24, 38, 19, 88}

Median: 7.75

3. {89, 99, 42, 16, 42, 71, 16}

Mode: none

4. {450, 400, 625, 225, 300, 750, 650, 625}

Range: 6.4

5. {17, 23, 65, 94, 33, 33, 33, 8, 57, 75, 44, 12, 11, 68, 39}

IQR: 4.6

6. {7.2, 3.1, 3.8, 9.5, 8.3, 8.4}

S.D.: 2.412

7. {1.5, 2.5, 3.5, 4.5, 4.5, 5.5, 6.5, 7.5}

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

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

68%

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

3

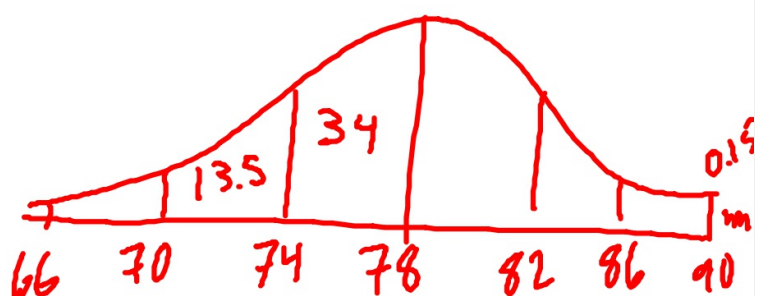
0.15% → 0.0015(2000)

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

950

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 than 32 minutes? **2.5%**

**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%**

## Statistics

# Sampling and Mixed Practice

Measures of Center  
Measures of Spread

Outliers  
Plots and 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

And for measures of spread...

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

**Population** - all the members within a set

**Sample** - a portion of the population

**\*Bigger sample = better representation\***

**Convenience** - readily available

**Systematic** - set interval/method for selection

**Self-Selected** - voluntary

**Random** - everyone has an equal chance of selection (no pattern)

**Bias** → over or under representing a group

**Match the sampling method for each situation.**

C 1. A newspaper has an ad to invite people to call in and complete a survey on what type of comics they like best.

D 2. The Drama Club selects every 5<sup>th</sup> student from an alphabetical list of all the students at the school to take a survey to find what type of drama performance that the student body would like to see.

B 3. A psychologist uses a computer program to randomly select names from a list of students at a university to take a survey on their exercise habits at college.

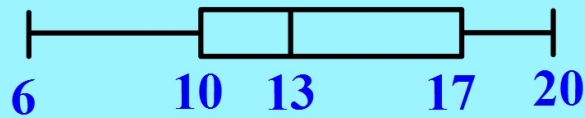
C 4. A reporter asks people leaving a gym what types of workouts that they like the best.

**METHOD**

**A. Convenience   B. Random   C. Self-selection   D. Systematic**

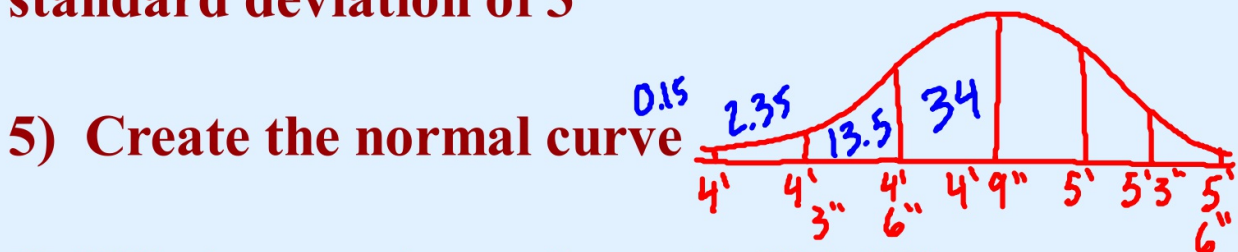


The box plot shows the average PPG for a HS basketball league (200 players):



- 1) What percent score more than 17 PPG?  
25%
- 2) What percent score less than 13 PPG?  
50%
- 3) How many score between 10 and 17 PPG?  
50% →  $0.5(200) = 100$  players
- 4) How many score more than 10 PPG?  
150 players

The height of 500 middle school students is normally distributed with a mean of 4' 9" and a standard deviation of 3"



- 5) Create the normal curve
- 6) What percent are above 4' 6" tall?  
84%
- 7) What percent are between 4' 3" and 5' tall?  
81.5%
- 8) How many are taller than 5' 6"?  
0.15% →  $0.0015(500) = 0.75$  0 or 1
- 9) How many are shorter than 4' 3"?  
12 or 13

TESTS



Complete All Assignments →	Need an 86% Test / Quiz Avg. to get an A
Complete ½ Assignments →	Need a 107% Test / Quiz Avg. to get an A
Assignments →	Need a 129% Test / Quiz Avg. to get an A (not possible)

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Complete All Assignments →	Need a 71% Test / Quiz Avg. to get a B
Complete ½ Assignments →	Need a 93% Test / Quiz Avg. to get a B
Assignments →	Need a 114% Test / Quiz Avg. to get a B (not possible)

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Complete All Assignments →	Need a 57% Test / Quiz Avg. to get a C
Complete ½ Assignments →	Need a 79% Test / Quiz Avg. to get a C
Assignments →	Need a 100% Test / Quiz Avg. to get a C

---

Complete All Assignments →	Need a 43% Test / Quiz Avg. to Pass
Complete ½ Assignments →	Need a 64% Test / Quiz Avg. to Pass
Assignments →	Need an 86% Test / Quiz Avg. to Pass

Lesson to be learned → DO YOUR WORK!!!