Math Strategies 1

Q4 - Pletcher
2023-2024
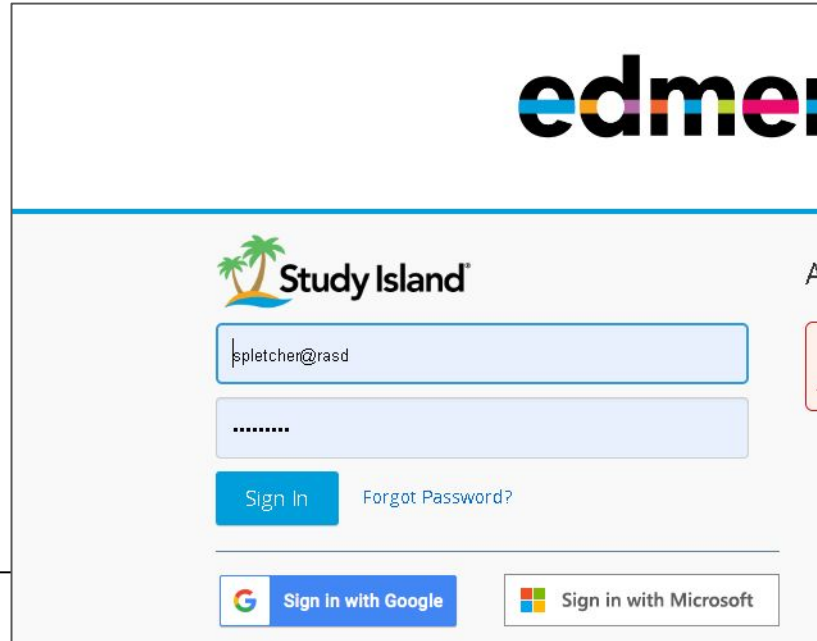
UPDATED April 8 Week
GOOGLE Classroom JOIN --
Display

Studyisland --- Curriculum for sections on statistics and probability

First initial of first name l   Full last name   @rasd

Password is -------

7th grade PSSA - Overview

These will be covered the first 2 weeks of term.

PA Grade 7, Math Anchor

M07.D-S.1.1.1

Determine whether a sample is a random sample given a real-world situation.

M07.D-S.1.1.2

Use data from a random sample to draw inferences about a population with an unknown characteristic of interest.
Example 1: Estimate the mean word length in a book by randomly sampling words from the book.
Example 2: Predict the winner of a school election based on randomly sampled survey data.

M07.D-S.2.1.1

Compare two numerical data distributions using measures of center and variability.
Example 1: The mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team. This difference is equal to approximately twice the variability (mean absolute deviation) on either team. On a line plot, note the difference between the two distributions of heights.
Example 2: Decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.

Week April 8 - 12th, 2024

B - Monday: Studyisland.com GROUP lesson on "Comparing Data Sets"

A -Tuesday: Studyisland.com Partner work on "Comparing Data Sets"

B-Wednesday Continue practice with either teacher led GROUP session or repeat individual/partner work on studyisland.com

A-**Thursday** - Work on Kahoot to practice calculating measures
https://kahoot.it/challenge/03387674?challenge-id=6a35df94-15d6-42bb-9a0b-07404ae ef3ff_1701213159524

B-Friday - Work on a comparison sheet of missed problems --- main thing is slow down and show work on each data set OR state why an answer is the best.

Monday Sample for MEAN in application SI problem

The table below shows Janelle's and Braden's scores on nine different math quizzes.

	Quiz 1	Quiz 2	Quiz 3	Quiz 4	Quiz 5	Quiz 6	Quiz 7	Quiz 8	Quiz 9
Janelle	86	100	98	83	88	96	100	82	95
Braden	92	88	100	78	89	79	86	82	82

What is the approximate difference between Janelle's and Braden's average quiz scores?

- ○ **A.** 4
- ○ **B.** 7
- ○ **C.** 9
- ● **D.** 6

Explanation   **Reset**   **Next Question**

$$\frac{828}{9} = 92$$

$$\frac{776}{9} = 86$$

Subtract Step 3

Step 1 Step 2 $\frac{Sum}{n}$

for each

$$92 - 86 = \boxed{6}$$

A͞ A̱ ▶ ■ 📏 ✎ | **Formula Sheet** 💬 | **Show Correct Answer** ⭐ | **Group Session Results**
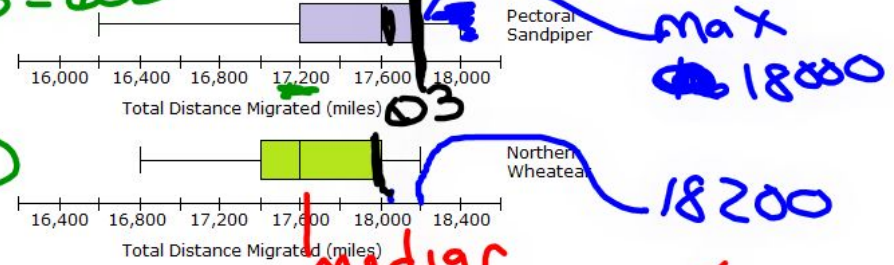
Directions: Select all the correct locations on the chart.

A scientist studied the migration paths of two different species of birds, the Pectoral Sandpiper and the Northern Wheatear. He tagged 20 of each species with GPS trackers and monitored their total migration distances for the year. The results are represented by the box plots below.

median

Pectoral Sandpiper

16,000 16,400 16,800 17,200 17,600 18,000
Total Distance Migrated (miles)

Northern Wheatear

16,400 16,800 17,200 17,600 18,000 18,400
Total Distance Migrated (miles)

median

Use the provided box plots to evaluate each of the statements below.

Statement		
The median migration distance for the Pectoral Sandpipers is the same as for the Northern Wheatears.	**True**	False
The interquartile range is greater for the Pectorial Sandpipers.	True	**False**
Both data sets have the same maximum value.	True	**False**
The third quartile for the Northern Wheatears is greater than the third quartile for the Pectorial Sandpipers.	**True**	False
The smallest minimum migration distance belongs to the Northern Wheatears.	True	**False**

Explanation   **Reset**   **Next Question**

Handwritten annotations:

Median

IQR = 17800 − 17200 = 600

IQR = 17400 − 18000 = 600

median
Q3
max 18800

18200
median

3rd quartile 17800
18000

Box

✓ 17,600
same

16200
is lower 16800

MAD - mean absolute deviation calculation explained

Explanation

The mean is found by dividing the sum of the data points by the total number of data points. To find the mean number of pencils in each class, add the number of pencils for each class.

$$\text{third period} : 1+1+1+1+2+2+2+3+5+6+6+6 = 36$$

$$\text{eighth period} : 1+1+1+1+4+5+5+5+5+6+6+8 = 48$$

Now, divide the sums by the number of students. In each data set, there are 12 students.

$$\text{third period} : \frac{36}{12} = 3$$
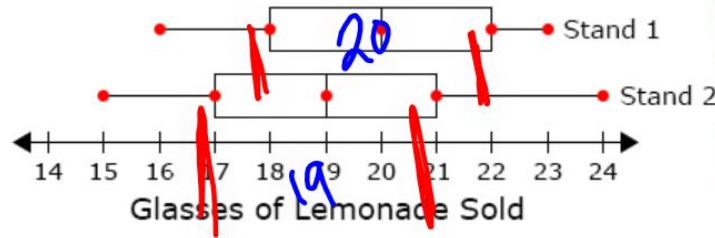
$$\text{eighth period} : \frac{48}{12} = 4$$

Therefore, the difference between the means of the data sets is 4 − 3 = 1. Divide this difference by the mean absolute deviation, 2.

$$\frac{1}{2} = 0.5$$

So, the difference between the means of the two data sets is approximately **0.5** times the mean absolute deviation.

IQR - explain with this example

There are two competing lemonade stands. One day, each lemonade stand recorded the number of glasses of lemonade they sold each hour. The number of glasses of lemonade sold are shown in the box plot below.

Handwritten annotations:

IQR = Box width
22 − 18 = 4

IQR = 21 − 17 = 4

20 **19**

Stand 1
Stand 2

14 15 16 17 18 19 20 21 22 23 24
Glasses of Lemonade Sold

Range 23 − 16 = 7
Range 24 − 15 = 9.

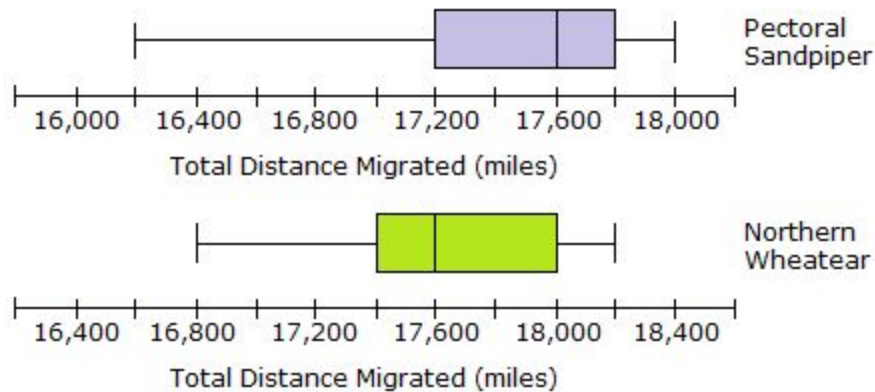Based on these samples, what generalization can be made?

○ **A.** The interquartile range of the hourly number of glasses of lemonade sold at stand 1 is greater than the interquartile range of the hourly number of glasses of lemonade sold at stand 2.

○ **B.** The median of the hourly number of glasses of lemonade sold at stand 1 is less than the median of the hourly number of glasses of lemonade sold at stand 2.

◉ **C.** The range of the hourly number of glasses of lemonade sold at stand 1 is less than the range of the hourly number of glasses of lemonade sold at stand 2.

Handwritten annotations:

Same
1 ≥ 2
0 =
Range
1 < 2
1 < 2
Median

Sample 2

A scientist studied the migration paths of two different species of birds, the Pectoral Sandpiper and the Northern Wheatear. He tagged 20 of each species with GPS trackers and monitored their total migration distances for the year. The results are represented by the box plots below.

Pectoral Sandpiper

Total Distance Migrated (miles)

Northern Wheatear

Total Distance Migrated (miles)

Use the provided box plots to evaluate each of the statements below.

The median migration distance for the Pectoral Sandpipers is the same as for the Northern Wheatears.	True	False
The interquartile range is greater for the Pectorial Sandpipers.	True	False
Both data sets have the same maximum value.	True	False

Careful - READ - Sample from worksheet

Is this a reading issue?

The table below shows the number of patients each dentist saw per day.

	Dentist A	Dentist B
Monday	7	12
Tuesday	13	9
Wednesday	9	13
Thursday	11	12
Friday	10	11

Which dentist has a higher median number of patients and what is the difference in the medians?

- ⭐ ○ **A.** Dentist B has a higher median by 4 patients.
- ○ **B.** Dentist B has a higher median by 2 patients.
- ○ **C.** Dentist A has a higher median by 4 patients.
- ❌ ◉ **D.** Dentist A has a higher median by 2 patients.

7th grade PSSA - Overview --- This is expected to be covered the 3rd and 4th weeks of grading term

Unit Objectives - Math 7 PSSA

ASSESSMENT ANCHOR		
M07.D-S.3	Investigate chance processes and develop, use, and evaluate probability models.	

DESCRIPTOR		ELIGIBLE CONTENT
M07.D-S.3.1	Predict or determine the likelihood of outcomes.	**M07.D-S.3.1.1** Predict or determine whether some outcomes are certain, more likely, less likely, equally likely, or impossible (i.e., a probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event).

ASSESSMENT ANCHOR		
M07.D-S.3	Investigate chance processes and develop, use, and evaluate probability models.	

DESCRIPTOR		ELIGIBLE CONTENT
M07.D-S.3.2	Use probability to predict outcomes.	**M07.D-S.3.2.1** Determine the probability of a chance event given relative frequency. Predict the approximate relative frequency given the probability. *Example: When rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times but probably not exactly 200 times.*
		M07.D-S.3.2.2 Find the probability of a simple event, including the probability of a simple event **not** occurring. *Example: What is the probability of **not** rolling a 1 on a number cube?*
		M07.D-S.3.2.3 Find probabilities of independent compound events using organized lists, tables, tree diagrams, and simulation.