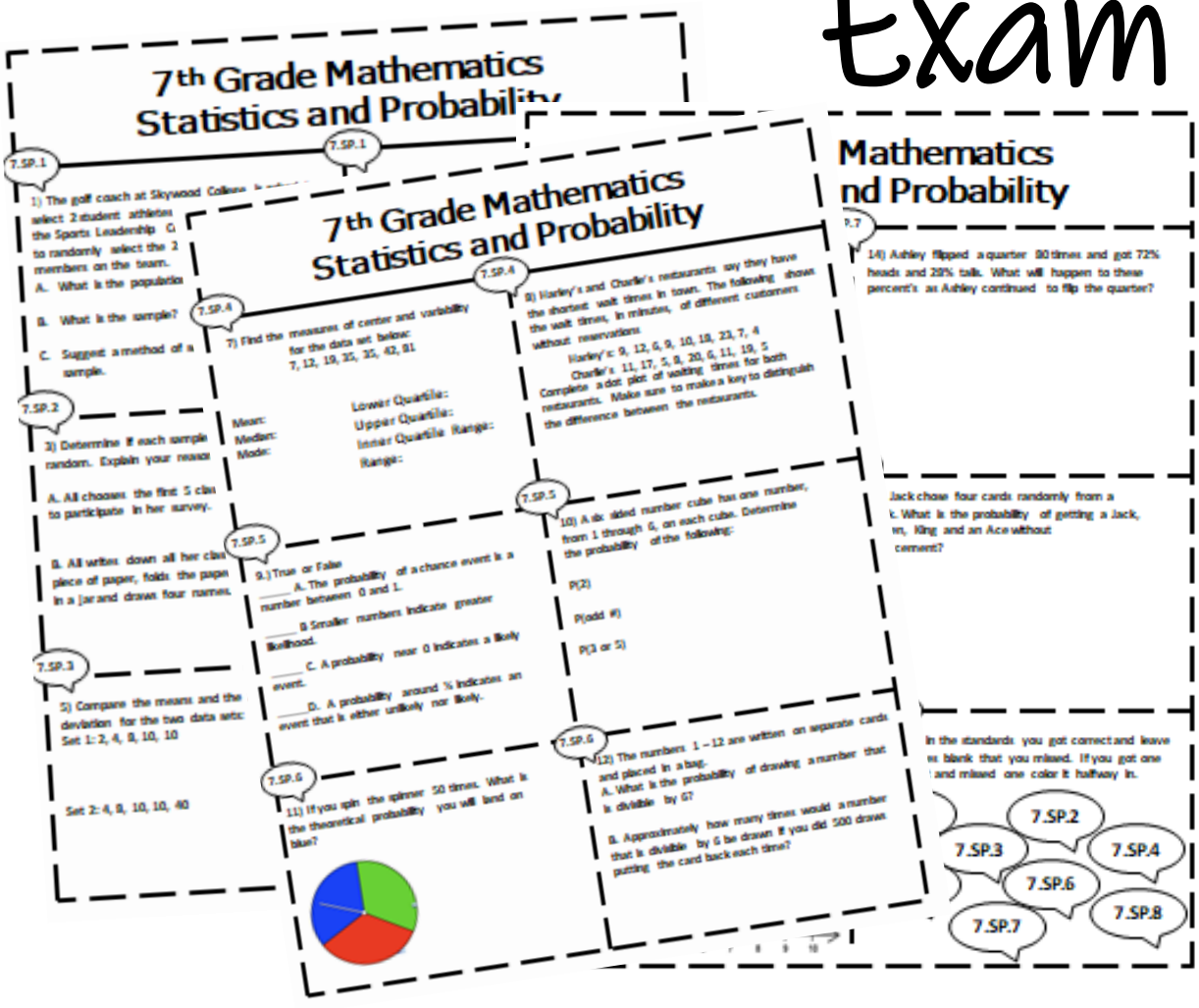
Grade 7

Aligned to the Common Core

Statistics & Probability Exam



2 QUESTIONS PER STANDARD

By: Math in the Midwest

Name: _____ Date: _____ Hour: _____

7th Grade Mathematics
Statistics and Probability

7.SP.1

1) **The golf coach at Skywood College is asked to select two student athletes to represent the team for the Sports Leadership Council. The coach decides to randomly select the two students out of the nine members on the team.**

A. **What is the population?**

B. **What is the sample?**

C. **Suggest a method of selecting the random sample.**

7.SP.1

2) Would the following samples provide an accurate representation of all students in your class if you want to survey a sample of the class about whether they have siblings. Explain your answer.

A. **The selection of every third student alphabetically.**

B. **The selection of all the boys in the class.**

7.SP.2

3) Determine if each sample is random or not random. Explain your reasoning.

A. Ali chooses the first five classmates that walk into her class to participate in her survey.

B. Ali writes down all her classmates' names on a piece of paper, folds the paper in half, puts them in a jar and draws four names.

7.SP.2

4) In a sample of people in the town hall, 20 of 25 favored building a new park for the town. If 4,000 people vote in the next local election, how many are likely to vote in favor of the new park?

7.SP.3

5) Compare the means and the mean absolute deviations for the two data sets:
Set 1: 2, 4, 8, 10, 10

Set 2: 4, 8, 10, 10, 40

7.SP.3

6) Compare the medians and the IQRs of the data sets in each.
Set 1: 16, 97, 52, 31

Set 2: 18, 49, 91, 20

Name: _____ Date: _____ Hour: _____

7th Grade Mathematics
Statistics and Probability

7.SP.4

7) Find the measures of center and variability for the data set below:
7, 12, 19, 35, 35, 42, 81

Mean:
Median:
Mode:

Lower Quartile:
Upper Quartile:
Inner Quartile Range:
Range:

7.SP.4

8) Harley's and Charlie's restaurants say they have the shortest wait times in town. The following shows the wait times, in minutes, of different customers without reservations:

Harley's: 9, 12, 6, 9, 10, 18, 23, 7, 4
Charlie's 11, 17, 5, 8, 20, 6, 11, 19, 5

Complete a dot plot of waiting times for both restaurants. Make sure to make a key to distinguish the difference between the restaurants.

7.SP.5

9.) True or False

_____ A. The probability of a chance event is a number between 0 and 1.

_____ B Smaller numbers indicate greater likelihood.

_____ C. A probability near 0 indicates a likely event.

_____D. A probability around ½ indicates an event that is either unlikely or likely.

7.SP.5

10) A six sided number cube has one number, from 1 through 6, on each cube. Determine the probability of the following:

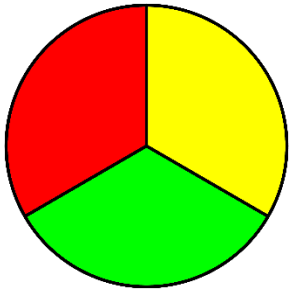
P(2)

P(odd #)

P(3 or 5)

7.SP.6

11) If you spin the spinner 50 times, what is the theoretical probability you will land on yellow?



7.SP.6

12) The numbers 1 – 12 are written on separate cards and placed in a bag.
A. What is the probability of drawing a number that is divisible by 6?

B. Approximately how many times would a number that is divisible by 6 be drawn if you did 500 draws putting the card back each time?

Name: _____ Date: _____ Hour: _____

7th Grade Mathematics
Statistics and Probability

7.SP.7

13) Mr. Franklin received his class list for the year which he broke down into gender shown in the table below:

Gender	#
Male	12
Female	15

If a student is selected at random, find the probability that:

A. Joshua (a student in the class) will be selected

B. A male will be selected

7.SP.7

14) Ashley flipped a quarter 80 times which resulted in 72% heads and 28% tails. What will happen to these percent's as Ashley continues to flip the quarter?

7.SP.8

15) Your teacher gives you a multiple choice quiz with a total of five questions and each question has four options. If you guess on every single question, what is the probability that you will get all five questions correct?

7.SP.8

16) Jack chose four cards randomly from a deck. What is the probability of getting a Jack, Queen, King and an Ace without replacement?

REFLECTION

A. What do you feel like you understand the most about statistics and probability?

_____

_____

_____

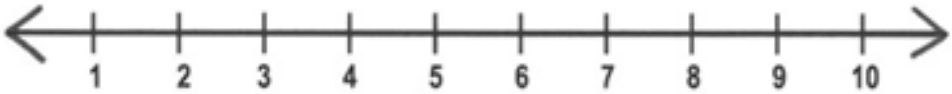
B. What is one area you would like to understand better about statistics and probability?

_____

_____

_____

C. CIRCLE the effort (10: MAXIMUM EFFORT) you gave and put a BOX (10: YOU COULD TEACH THIS TO SOMEONE ELSE) around how you would rate your UNDERSTANDING of the content using the number line below.



Name: _____ Date: _____ Hour: _____

7th Grade Mathematics
Statistics and Probability

7.SP.1

1) The golf coach at Skywood College is asked to select two student athletes to represent the team for the Sports Leadership Council. The coach decides to randomly select the two students out of the nine members on the team.

A. What is the population?

Skywood College Golf Team

B. What is the sample?

2 students randomly selected

C. Suggest a method of selecting the random sample.

Answers will vary

7.SP.1

2) Would the following samples provide an accurate representation of all students in your class if you want to survey a sample of the class about whether they have siblings. Explain your answer.

A. The selection of every third student alphabetically

More than likely represent all students in the class

B. The selection of all the boys in the class.

Does not represent all students because girls were not surveyed

7.SP.2

3) Determine if each sample is random or not random. Explain your reasoning.

A. Ali chooses the first 5 classmates that walk into her class to participate in her survey.

Not random

B. Ali writes down all her classmates' names on a piece of paper, folds the paper in half, puts them in a jar and draws four names.

Random

7.SP.2

4) In a sample of people in the town hall, 20 of 25 favored building a new park for the town. If 4,000 people vote in the next local election, how many are likely to vote in favor of the new park?

3,200 people

7.SP.3

5) Compare the means and the mean absolute deviations for the two data sets:

Set 1: 2, 4, 8, 10, 10

Mean = 6.8

MAD = 3.04

Set 2: 4, 8, 10, 10, 40

Mean = 14.4

MAD = 10.24

The difference in the means is 7.6 which falls between the MAD of Set 1 and 2

7.SP.3

6) Compare the medians and the IQRs of the data sets in each:

Set 1: 16, 97, 52, 31

Median = 41.5

IQR = 51

Set 2: 18, 49, 91, 20

Median = 34.5

IQR = 51

Name: _____ Date: _____ Hour: _____

7th Grade Mathematics
Statistics and Probability

7.SP.4

7) Find the measures of center and variability for the data set below:
7, 12, 19, 35, 35, 42, 81

Mean: 33
Median: 35
Mode: 35

Lower Quartile: 12
Upper Quartile: 42
Inner Quartile Range: 30
Range: 74

7.SP.4

8) Harley's and Charlie's restaurants say they have the shortest wait times in town. The following shows the wait times, in minutes, of different customers without reservations

Harley's: 9, 12, 6, 9, 10, 18, 23, 7, 4
Charlie's 11, 17, 5, 8, 20, 6, 11, 19, 5

Complete a dot plot of waiting times for both restaurants. Make sure to make a key to distinguish the difference between the restaurants.

Check students' dot plots, make sure they have created a key

7.SP.5

9.) True or False

True A. The probability of a chance event is a number between 0 and 1.

False B Smaller numbers indicate greater likelihood.

False C. A probability near 0 indicates a likely event.

True D. A probability around ½ indicates an event that is either unlikely or likely.

7.SP.5

10) A six sided number cube has one number, from 1 through 6, on each cube. Determine the probability of the following:

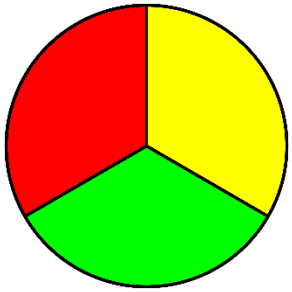
P(2) $\frac{1}{6}$

P(odd #) $\frac{1}{2}$

P(3 or 5) $\frac{1}{3}$

7.SP.6

11) If you spin the spinner 50 times, what is the theoretical probability you will land on yellow?



Approximately 16 or 17 times

7.SP.6

12) The numbers 1 – 12 are written on separate cards and placed in a bag.

A. What is the probability of drawing a number that is divisible by 6?

1/6

B. Approximately how many times would a number that is divisible by 6 be drawn if you did 500 draws putting the card back each time?

Approximately 83 times

Name: _____ Date: _____ Hour: _____

7th Grade Mathematics
Statistics and Probability

7.SP.7

13) Mr. Franklin received his class list for the year which he broke down into gender shown in the table below:

Gender	#
Male	12
Female	15

If a student is selected at random, find the probability that:

A. Joshua (a student in the class) will be selected

1/27

B. A male will be selected

12/27

7.SP.7

14) Ashley flipped a quarter 80 times which resulted in 72% heads and 28% tails. What will happen to these percent's as Ashley continues to flip the quarter?

They will get closer and closer to 50% the more she flips the quarter

7.SP.8

15) Your teacher gives you a multiple choice quiz with a total of five questions and each question has four options. If you guess on every single question, what is the probability that you will get all five questions correct?

$$\frac{1}{1,024}$$

7.SP.8

16) Jack chose four cards randomly from a deck. What is the probability of getting a Jack, Queen, King and an Ace without replacement?

$$\frac{4}{52} \times \frac{4}{51} \times \frac{4}{50} \times \frac{4}{49} = \frac{256}{6,497,400} = \frac{32}{812,175}$$

REFLECTION

A. What do you feel like you understand the most about statistics and probability?

_____

_____

_____

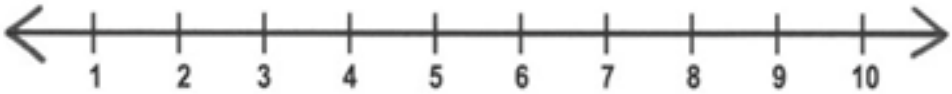
B. What is one area you would like to understand better about statistics and probability?

_____

_____

_____

C. CIRCLE the effort (10: MAXIMUM EFFORT) you gave and put a BOX (10: YOU COULD TEACH THIS TO SOMEONE ELSE) around how you would rate your UNDERSTANDING of the content using the number line below.



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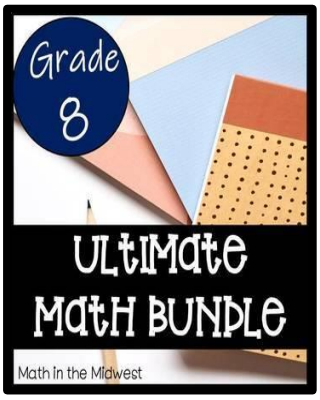

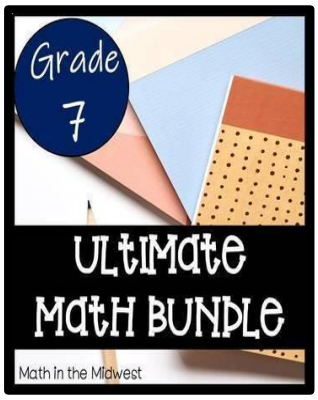

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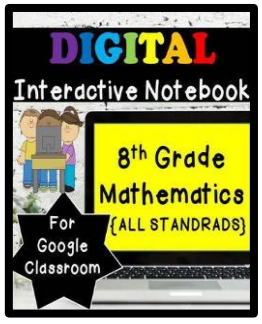

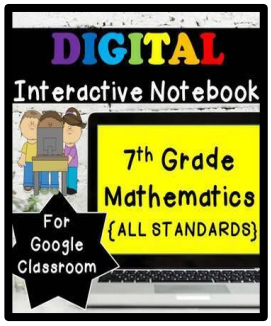

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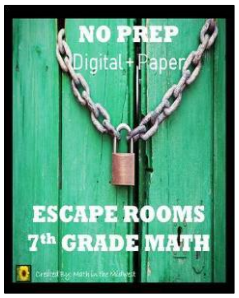

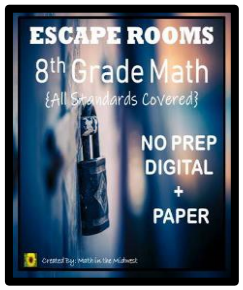

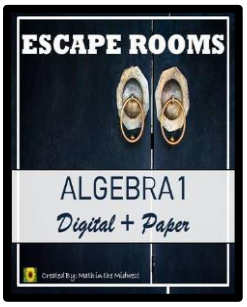

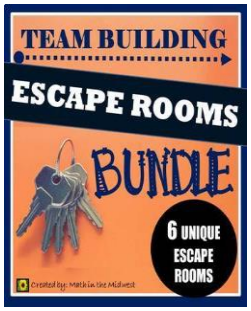

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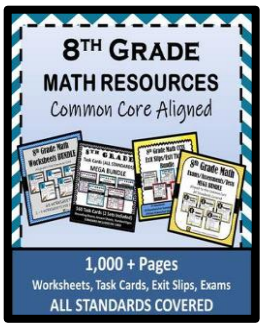

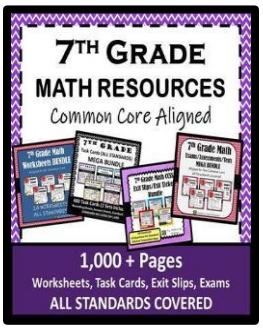

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