# Math Work Packet #3

April 13th- April 24th

1) Complete the worksheets **read** the **examples** on top and **circle** any **clue words** and numbers - no calculators

2) Work on ALEKS for at least 1 hour during the week (if you have internet)

Name: _____ Teacher:_____ Date: _____ Score: _____

| | | | |
|---|---|---|---|
| 1 $4-(-6)$ | 2 $-35\div 7$ | 3 $\frac{5}{8}-\frac{13}{8}$ | 4 $\frac{5}{7}-\left(-\frac{1}{6}\right)$ |
| 5 $-\frac{1}{5}\bullet -\frac{3}{2}$ | 6 $7.4-(-3.7)$ | 7 $52.682\bullet 100$ | 8 $(-12\bullet 2)\div 4$ |
| 9 $(-6)+(-8)$ | 10 $4\bullet -2$ | 11 $\left(-\frac{7}{4}\right)+\left(-\frac{7}{4}\right)$ | 12 $\left(-\frac{9}{7}\right)-\frac{7}{8}$ |
| 13 $\frac{7}{8}\div -\frac{8}{5}$ | 14 $5.1-6.1$ | 15 $6400\div 1000$ | 16 $2\div 2\bullet -10\div 2$ |
| 17 $(-3)+(-4)$ | 18 $-40\div -10$ | 19 $\frac{5}{4}+\left(-\frac{7}{4}\right)$ | 20 $\frac{1}{3}+\left(-\frac{3}{7}\right)$ |

Name: _____ Teacher:_____ Date: _____ Score: _____

| | | | |
|---|---|---|---|
| 21 $\frac{3}{2} \div -\frac{2}{5}$ | 22 $2.4 - (-7.7)$ | 23 $8.2 \bullet 1000$ | 24 $-2 + 6 - 4 \div -2$ |
| 25 $5 - (-8)$ | 26 $-2 \bullet -7$ | 27 $\frac{3}{7} - \left(-\frac{4}{7}\right)$ | 28 $\left(-\frac{1}{2}\right) - \left(-\frac{5}{3}\right)$ |
| 29 $\frac{3}{4} \bullet -\frac{4}{5}$ | 30 $(-3.1) + 1.8$ | 31 $.0231 \bullet 10000$ | 32 $(10 \bullet 2) \div (-2)$ |
| 33 $8 - (-4)$ | 34 $42 \div -7$ | 35 $\frac{15}{8} + \left(-\frac{9}{8}\right)$ | 36 $\left(-\frac{4}{3}\right) - \frac{3}{2}$ |
| 37 $\frac{1}{3} \bullet -\frac{3}{2}$ | 38 $(-7.1) - 7.1$ | 39 $7.25 \div 1000$ | 40 $1 - (2 + 5)$ |

Name: _____ Teacher:_____ Date: _____ Score: _____

| | | | |
|---|---|---|---|
| 1 $-6-4$ | 2 $-50 \div -10$ | 3 $-\frac{4}{3}-\frac{1}{3}$ | 4 $\frac{7}{8}+\left(-\frac{2}{3}\right)$ |
| 5 $-\frac{2}{9} \cdot \frac{1}{5}$ | 6 $-7.9-0.8$ | 7 $0.04 \cdot 100$ | 8 $4 \cdot 4-(4-1)$ |
| 9 $8+(-2)$ | 10 $-4 \cdot -9$ | 11 $\frac{1}{3}-\frac{2}{3}$ | 12 $4-\frac{9}{7}$ |
| 13 $\frac{1}{4} \div \frac{2}{3}$ | 14 $-4.7-4.2$ | 15 $-3.8 \div 10000$ | 16 $3+5-8 \div 2$ |
| 17 $6-(-6)$ | 18 $63 \div 9$ | 19 $-\frac{9}{5}+\left(-\frac{7}{5}\right)$ | 20 $\frac{5}{4}+\left(-\frac{1}{8}\right)$ |

Name: _____ Teacher:_____ Date: _____ Score: _____

| | | | |
|---|---|---|---|
| 21 $-\frac{1}{8} \cdot -\frac{1}{5}$ | 22 $-5.7 + (-7.6)$ | 23 $3.6 \cdot 10000$ | 24 $(10 + 2) \div (6 - 3)$ |
| 25 $-4 - (-3)$ | 26 $-6 \cdot 9$ | 27 $\frac{1}{6} - \frac{5}{6}$ | 28 $\frac{2}{5} - \frac{5}{3}$ |
| 29 $-\frac{1}{3} \div \frac{4}{3}$ | 30 $-6.1 + 7.8$ | 31 $2 \div 100$ | 32 $(4 + 9 + 7) \div 5$ |
| 33 $-3 + 7$ | 34 $-4 \div 2$ | 35 $-\frac{8}{7} - \frac{6}{7}$ | 36 $\frac{1}{8} + \left(-\frac{2}{7}\right)$ |
| 37 $-\frac{2}{3} \cdot \frac{5}{4}$ | 38 $1 - (-5.2)$ | 39 $21.5 \cdot 100$ | 40 $4 \cdot 2 - 8 \div 4$ |

## Samples

A sample is a part of a population. Samples are used when it would be too time-consuming or too expensive to survey an entire population.

A population may be people, such as all the people in a city, or it may be objects, such as all the books in a bookstore.

For a sample to be fair, it must be a **random sample**. In a random sample, each person or object in the population has an equal chance of being selected for the sample.

Jeremy is taking a survey of all sixth-grade students to find out the students' favorite holiday.

- A random sample would be a group chosen by drawing names from a hat containing all sixth-grade students' names.
- A sample that is not random would be Jeremy's best friends.

Selecting a random sample is one way to make sure the sample is representative of the population.

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1. Carole wants to find out the favorite restaurants of members of her community. Did she choose a random sample? Explain.

   a. Carole stands at the front entrance of the town library on Wednesday and randomly chooses people arriving.

   _____

   _____

   b. Carole calls teachers randomly chosen from a list of all school employees.

   _____

   _____

   c. Carole surveys people randomly chosen from a list of all the members of her community.

   _____

   _____

2. Evan is on a committee to determine if the players in the Tri-Town Soccer League want to extend the season. Tell whether he should survey *all the players* or use *a sample* in each situation.

   a. There are 40 players in the league. _____

   b. The players are difficult to reach since they live in many areas. _____

   c. There are 650 players in the league. _____

## Samples

Tell whether you would survey the population or use a sample. Explain.

1. You want to know the type of computer, if any, that each student in your class has at home.

_____

_____

2. You want to know the average number of siblings of all sixth grade students in your school district.

_____

_____

Tell whether a random sample was chosen. Explain.

3. To determine the favorite sport of all the employees, Marcy is surveying the members of the company baseball team.

_____

_____

4. A company conducted an employee survey by interviewing 50 employees whose names were selected by being picked out of a box containing the names of all employees.

_____

_____

5. Carlos wanted to find out which candidate the majority of his neighbors was supporting. He posted a notice at the neighborhood clubhouse asking people to call him with their opinions.

_____

_____



## Mixed Review

Evaluate each expression.

6. $9.03 \div x$ for $x = 3$ _____

7. $7m$ for $m = 2.2$ _____

8. $4.5 - w$ for $w = 1.9$ _____

9. $17.4 + h$ for $h = 5.9$ _____

10. $k \div 2$ for $k = 6.4$ _____

11. $6.58 + a$ for $a = 0.45$ _____

Name _____



## Mean, Median, and Mode

The test scores of a math class are shown below. Find the mean, median, and mode for the data.

| Test Scores | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 78 | 81 | 93 | 91 | 100 | 100 | 81 | 78 | 98 | 100 |

**Mean:** Find the sum of the scores and divide by the number of scores.

$$78 + 81 + 93 + 91 + 100 + 100 + 81 + 78 + 98 + 100 = 900$$

$$900 \div 10 = 90$$

**Median:** Arrange the scores in order from least to greatest. Find the number that is in the middle. Since there is an even number of scores, find the mean of two middle numbers.

78 78 81 81 91 93 98 100 100 100

92←The mean of 91 and 93 is 92.

**Mode:** Find the number or numbers that appear most often.

100

So, the mean is 90. The median is 92. The mode is 100.

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Find the mean, median, and mode for each set of data.

1.

| Test Scores | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 85 | 77 | 91 | 97 | 95 | 95 | 79 | 83 | 95 | 93 |

mean: _____

median: _____

mode: _____

2.

| Golf Scores | | | | | |
|---|---|---|---|---|---|
| 88 | 76 | 92 | 91 | 69 | 76 |

mean: _____

median: _____

mode: _____

3.

| Number of School Days | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Japan | England | Israel | Germany | Netherlands | USA | Thailand | Sweden | Canada |
| 243 | 200 | 216 | 210 | 200 | 180 | 200 | 180 | 180 |

mean: _____ median: _____ mode: _____

Name _____ LESSON 5.4

# Mean, Median, and Mode

## Vocabulary

Write the correct letter from Column 2.

| Column 1 | Column 2 |
|---|---|
| _____ 1. mean | a. number that appears most often in a group of numbers |
| _____ 2. median | b. sum of a group of numbers divided by the number of addends |
| _____ 3. mode | c. middle number in a group of numbers arranged in order |

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Complete the table.

| | Data | Mean | Median | Mode |
|---|---|---|---|---|
| 4. | 12, 15, 11, 15, 13, 10, 15 | | | |
| 5. | 68, 74, 71, 69, 74, 78, 70 | | | |
| 6. | 7.6, 6.2, 6.0, 6.2, 8.1, 6.7 | | | |
| 7. | 168, 212, 146, 195, 200, 156 | | | |

For 8–10, use the table below.

| Test | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Score | 91 | 84 | 96 | 89 | 93 | 84 |

8. Find the mean. _____

9. Find the median. _____

10. Find the mode. _____

| Test Scores | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 98 | 88 | 82 | 91 | 83 | 76 | 98 | 100 | 84 | 90 |

11. Use the data above to make a line plot. Use your line plot to find the median and mode.

## Mixed Review

Write the numbers in order from least to greatest.

12. 218.4, 284.1, 241.8, 214.8 _____

13. 6.17, 6.71, 6.107, 6.701 _____

Name _____

## Theoretical Probability

To find theoretical probability, write a ratio.

$$\text{Probability: } \frac{\text{number of favorable outcomes}}{\text{number of possible, equally likely outcomes}}$$

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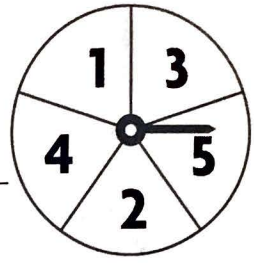
1. You have a spinner numbered 1 to 5. What is the probability of spinning a 2?




   a. List the possible, equally likely outcomes.

   _____

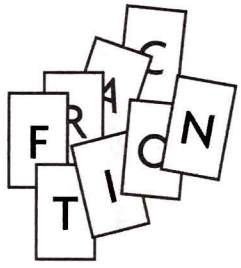
   b. List the favorable outcomes. _____

   c. You can write as a fraction the probability of spinning a 2.

$$P(2) = \frac{\text{number of favorable outcomes}}{\text{number of possible, equally likely outcomes}}$$

   Write the probability as a fraction. _____

2. Each letter of the word *FRACTION* is written on a card and placed in a bag. What is the probability of choosing a *C*?




   a. List the possible, equally likely outcomes.

   _____

   b. List the favorable outcomes. _____

   c. You can write the probability of choosing a *C* as a fraction.

$$P(C) = \frac{\text{number of favorable outcomes}}{\text{number of possible, equally likely outcomes}}$$

   Write the probability as a fraction. _____

3. Each letter of the word *NUMBER* is written on a card and placed in a bag. What is the probability of choosing a vowel?

   a. List the possible, equally likely outcomes.

   _____

   b. List the favorable outcomes.

   _____

   c. You can write the probability of choosing a vowel as a fraction.

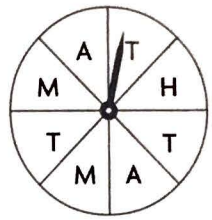
$$P(\text{vowel}) = \frac{\text{number of favorable outcomes}}{\text{number of possible, equally likely outcomes}}$$

   Write the probability as a fraction in simplest form. _____

Name _____

## Theoretical Probability

Use the spinner at the right to find each probability. Write each answer as a fraction, a decimal, and a percent.




1. P($M$) _____
2. P($H$) _____
3. P($J$) _____
4. P($T$) _____
5. P($A$) _____
6. P($M$ or $A$) _____
7. P($T$ or $H$) _____
8. P($M$, $A$, or $T$) _____

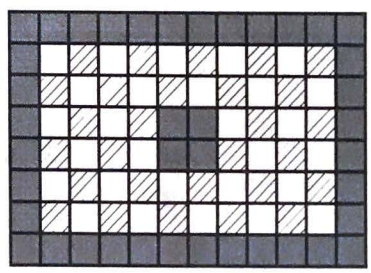
A bag contains 5 blue, 3 red, and 2 green pencils. You choose one pencil without looking. Find each probability.

9. P(pink) ____ 10. P(blue) ____ 11. P(green) ____ 12. P(blue or red) ____

Cards numbered 2, 2, 2, 3, 4, 4, 5, and 5 are placed in a box. You choose one card without looking. Compare the probabilities. Write $<$, $>$, or $=$ in each ◯.

13. P(2) ◯ P(4) 14. P(4) ◯ P(5) 15. P(3 or 5) ◯ P(2, 3, or 5)

For 16–18, use the figure at the right. Find each probability.



16. P(shaded square) _____
17. P(striped or white square) _____
18. P(shaded or striped square) _____

## Mixed Review

Evaluate the expression for $x = 1$, 2, and 3.

19. $3x + 5$ _____ 20. $4x - x^2$ _____ 21. $7(2x + 1)$ _____ 22. $x^2(6 - x)$ _____

Write the fraction as a percent.

23. $\frac{3}{4}$ _____ 24. $\frac{3}{10}$ _____ 25. $\frac{2}{25}$ _____ 26. $\frac{6}{5}$ _____

## Experimental Probability

You have a box containing thousands of radish seeds. How many of them will sprout? You can experiment to find out.

Suppose you plant 20 of the seeds, and 15 of them sprout.

$$\frac{\text{15 seeds sprout}}{\text{20 seeds in all}} \rightarrow \frac{15}{20} = \frac{3}{4}$$

You might conclude, based on your experiment, that about $\frac{3}{4}$ of the seeds will sprout.

So, if you select a seed at random from the box, the **experimental probability** that it will sprout is $\frac{3}{4}$.

The **theoretical probability** that a seed will sprout is $\frac{1}{2}$ if sprouting and not sprouting are equally likely. In this case, the experimental probability is greater than the theoretical probability.

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Mel uses a spinner numbered 1 to 5. The table below shows the results of 25 spins.

| Number | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Frequency | 4 | 2 | 6 | 8 | 5 |

1. What is the experimental probability of spinning a 4?

   $$\text{Experimental probability} = \frac{\text{number of favorable outcomes that occur}}{\text{total number of trials}}$$

   Use the formula to write the experimental probability of spinning a 4 as a fraction and a decimal. _____

2. What is the theoretical probability of spinning a 4?

   $$\text{Theoretical probability} = \frac{\text{number of favorable outcomes}}{\text{number of possible, equally likely outcomes}}$$

   Use the formula to write the theoretical probability of spinning a 4 as a fraction and a decimal. _____

3. How does the experimental probability of spinning a 4 compare with the theoretical probability?

   _____

4. What is the experimental probability of spinning a 2? Write your answer as a fraction and a decimal. _____

5. What is the theoretical probability of spinning a 2? Write your answer as a fraction and a decimal. _____

6. How does the experimental probability of spinning a 2 compare with the theoretical probability?

   _____

Name _____ LESSON 26.5

## Experimental Probability

Adam tossed a coin 50 times. For Exercises 1–2, use the table at the right to find the experimental probability. Write the answer as a fraction and as a decimal.

| Coin | Heads | Tails |
|---|---|---|
| Toss | 22 | 28 |

1. P(Heads) _____ 2. P(Tails) _____

3. What is the theoretical probability of getting heads? _____

Sarah rolled a number cube numbered 1 to 6. The table below shows the results of rolling the cube 50 times. Use the results in the table to find the experimental probability. Write the answer as a fraction and as a decimal.

| Number | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Times rolled | 6 | 11 | 5 | 10 | 16 | 2 |

4. P(3) _____ 5. P(4 or 5) _____ 6. P(1 or 2) _____

7. P(5) _____ 8. P(1) _____ 9. P(6) _____

10. P(1 or 3) _____ 11. P(3 or 6) _____ 12. P(not 4) _____

13. What is the theoretical probability for each number? _____

14. For which numbers on the number cube is the theoretical probability greater than the experimental probability? _____

### Mixed Review

Multiply. Write the answer in simplest form.

15. $\frac{3}{4} \times \frac{2}{3}$ _____ 16. $\frac{1}{2} \times \frac{5}{6}$ _____ 17. $\frac{3}{8} \times \frac{4}{9}$ _____ 18. $\frac{5}{12} \times \frac{3}{10}$ _____

Find the sum or difference. Write the answer in simplest form.

19. $1\frac{1}{2} + 3\frac{3}{8}$ _____ 20. $5\frac{7}{8} - 2\frac{1}{4}$ _____ 21. $\frac{7}{9} + 3\frac{2}{3}$ _____

22. $4\frac{2}{5} - 1\frac{3}{10}$ _____ 23. $6\frac{1}{6} + 7\frac{3}{4}$ _____ 24. $8\frac{5}{12} - 3\frac{1}{3}$ _____