lesson thirteen - student resource sheet

Lesson Objective: Calculate statistics: mean, median, and mode.

Vocabulary Box

mean — The number found by dividing the sum of a set of numbers by the number of addends. Example: For the set of numbers 80, 72, 91, and 85, the mean is:

$$\frac{80+72+91+85}{4} = \frac{328}{4} = 82$$

median — The middle number, or the average of the two middle numbers, in an ordered set of data. Example: For a set of seven numbers- 88, 8, 306 19,101, 25, and 25- the median is 25. It is the middle number in the ordered set: 8, 19, 25, 25, 88, 101, 306.

mode — The numbers that occur most often in a set of data. Example: For the set of numbers in the median example above, the mode is 25 because it occurs twice, which is more times than any other number.

Guided Practice

Directions: Solve each problem with a partner.

I. Calculate the mean, median, and mode of each data set.

1. 8, 9, 5, 2, 3, 7, 5, 6, 5, 0 mean:_____ median: _____ mode:_____

2. 3, 26, 40, 36, 49, 26 mean:_____ median:_____ mode:_____

3. 90, 60, 70, 60, 50, 80, 30, 50, 10, 20

mean:_____ median:_____ mode:_____

II. Calculate the mean, median, and mode for each data set.

1. 7, 15, 15, 21, 18, 10, 4, 13, 5

mean:_____ median:_____ mode:_____

2. 45, 45, 60, 55, 35, 60

mean:_____ median:_____ mode:_____

Summary/Closure

A. Vocabulary Words

Match each vocabulary word with its definition.

1._____ mean	a. the middle number, or the average of the two middle numbers, in an ordered set of data
2._____ median	b. the numbers that occur most often in a set of data
3._____ mode	c. the number found by dividing the sum of a set of numbers by the number of addends

B. Summarize What We Learned Today

Explain how to find the median of a data set with an even number of data points.

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Independent Practice

Directions: Complete the following practice problems on your own. Your teacher will review the answers. Make sure you show all your work.

I. Find the mode or modes for each set of numbers. If none, write *no mode*.

1. 123, 45, 81, 50, 45, 121, 70, 81, 45

   _____

2. 10, 12, 15, 12, 18, 15, 16, 11, 3

   _____

3. 6, 7, 8, 7, 6, 8, 2, 9, 9, 2

   _____

II. Find the median for each set of numbers.

1. 17, 23, 27, 30, 19, 25, 18 _____

2. 100, 120, 120, 130, 110, 100 _____

III. Find the mean for each set of numbers.

1. 10, 7, 13, 4, 6 _____

2. 18, 22, 20, 23, 17, 20 _____

3. 35, 50, 45, 40, 45, 65, 70 _____

Directions: The mean of each set of numbers is 20. Which number belongs in the blank?

1. 0, _____, 30, 20, 40

2. 30, 10, _____, 23, 15, 25

Problem Solving

1. Mrs. Grimm has given each student in her math class a choice of grading systems. A student's grade can now be based on the mean, the median, or the mode of his or her test scores. Jackson's test scores are shown below. Which grading system should Jackson choose? Explain the reasons for your choice in complete sentences.

77	100	65	65	95	90

2. Danny received an 84 and a 92 on two tests in his language arts class. Today, he is taking another test in that class. He wants his test average to be 90 or higher. What is the lowest score he can receive on the third test? Show your work.

Use the following data set to answer the questions below: 18, 18, 24, 15, 25.

1. What is the mean?

2. What is the median?

3. What is the mode?

Lesson Objective: Choose and use an appropriate problem-solving strategy.

Guided Practice on Problem Solving Strategies

Directions: Complete the following practice problems with your partner. Your teacher will review the answers. Make sure you show all your work, check your answers, and write your answers in complete sentences.

1. Jamal and Alex made 180 cookies to sell at the school bake sale. They divided the cookies into bags and put the same number in each bag. They used all the cookies and filled 12 bags. How many cookies did they put in each bag?

   Step 1: What do you need to find out?

   _____

   Step 2: What do you know?

   They made _____ cookies.

   They filled _____ bags with cookies.

   They used _____ the cookies.

   They put the same number of cookies in each _____.

   Step 3: Choose a strategy to solve the problem, and plan how to use it.

   Strategy:_____

   I will use one tile to represent five _____ in my model.

   I will use one sheet of paper to represent one _____ in my model.

   I will make a pile of _____ tiles to model all the cookies they made.

   I will use _____ sheets of paper to model all the bags they filled.

   I will put an equal number of _____on each sheet of paper to model how they filled the bags with cookies.

   Then, I will count the number of tiles on each sheet of paper to find how many _____ they put in each _____.

Step 4: Use the strategy to solve the problem.
My model has _____ tiles on each sheet of paper.
Each tile represents _____ cookies.

Each bag contains _____ total cookies.

Step 5: Check your answer and write the answer in a complete sentence.
Divide to check: 180 ÷ 12 = _____

Multiply to check: 15 x 12 = _____

Answer:_____

2. Lisa made some green paint to cover a wall in her bedroom. First, she poured some blue paint into a can. Then, she mixed in $\frac{3}{8}$ gallon of yellow paint. After that, she mixed in $\frac{1}{8}$ gallon of white paint. Lisa made a total of $\frac{7}{8}$ gallon of green paint. How much blue paint did she use in the mixture?

Step 1: What do you need to find out? _____

Step 2: What do you know?

She made _____ of green paint.

She used _____, _____, and _____ paints to make the green paint.

She used _____ of yellow paint.

She used _____ of white paint.

Step 3: Choose a strategy to solve the problem, and plan how to use it.

Strategy: _____

I will start with the total amount of paint Lisa made. From that total, I will subtract each amount of paint she mixed in the reverse order. My final result will be the amount of blue paint she used.

Step 4: Use the strategy to solve the problem.

$\frac{7}{8}$ gallon $-\frac{1}{8}$ gallon = _____

_____ $-\frac{3}{8}$ gallon = _____

Step 5: Check your answer and write the answer in a complete sentence.

Work forward to find the total.

_____ + $\frac{1}{8}$ gallon + $\frac{3}{8}$ gallon = $\frac{7}{8}$ gallon

Answer: _____

Directions: Complete the following practice problems on your own. Your teacher will review the answers. Make sure you show all your work, check your answers, and write your answers in complete sentences.

1. Celia bought 36 pieces of candy to make party favor bags. She used all the candy and filled nine bags. She put the same amount of candy in each bag. How many pieces of candy did Celia put in each party favor bag?

   What do you need to find out?

   _____

   What do you know?

   _____

   What strategy will you use to solve the problem?

   _____

   _____

How will you use that strategy to solve the problem?

Use your strategy to solve the problem.

My model shows _____ tiles on each sheet of paper.

How can you check your answer?

Answer:

2. Antoine bought a strip of wood for an art project; however, the strip was too long. He cut off $\frac{1}{12}$ foot. It was still too long! So, he cut off another $\frac{1}{12}$ foot. Now, the strip is the perfect size at $\frac{5}{12}$ foot long. How long was the original strip of wood?

   What do you need to find out?

   What do you know?

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What strategy will you use to solve the problem?

How will you use that strategy to solve the problem?

Use your strategy to solve the problem.

How can you check your answer?

Answer: