Algebra/Geometry Institute Summer 2006

Lesson Plan II: What Percent of Ratio is Proportion?
Faculty Name: *Tanya S. Castal*
School: Coahoma County Junior High School Clarksdale, MS
Grade Level: 8th

1 Teaching Objective(s) **Lesson plan designed for1-2 days*

Mississippi Mathematics Framework 2000-2005

The student will:

- 4a. write ratios comparing given data
- 4c. solve proportions

2 Instructional Activities

Have the Do Now! activity placed on the chalkboard/overhead projector. (Do Now! activity should review students on the previous lesson. Do Now! activities also get students working so that discipline will be minimal). **Attachment 1**

Begin the class with one or both of these activities:

I. Say: *There are (total number) students in our _____ period class. I want all of my male (or female) students to stand and jump up and down.* As they are jumping up and down, ask *Of the (number of male/female students) jumping up and down, how many are male (or female)?*

II. Say: There are *(total number)* students in uniform. I want all of my students with *(light color or dark color/ white)* uniform shirts to stand. Of the (*total number)* students, how many *(number of students in specific color shirt)* students have uniform shirts on?

Define **ratio**.

Ratio: a ratio is a comparison of two numbers. The comparison can be shown as

a : b
a to b
a out of b
$$\frac{a}{b}, \text{ where } b \neq 0$$

Have students to brainstorm and come up with examples of ratios. Have them share their examples with the rest of the class.

To introduce proportion, place the example on the chalkboard/overhead projector:

Mark ran 2 miles in 50 minutes. How long does it take for him to run 6 miles.

Ask the students what is being compared in the above statement. Lead the discussion to gear students to realize that two things are being compared at two different intervals/times. Define **proportion.**

> **Proportion**: a proportion is an equation that shows two ratios are equal. Ratios are generally written as fractions. (A proportion shows that two fractions are equal).

Demonstrate to students how using ratio boxes can help solve proportions. Use the above example:
Mark ran 2 miles in 50 minutes. How long does it take for him to run 6 miles.

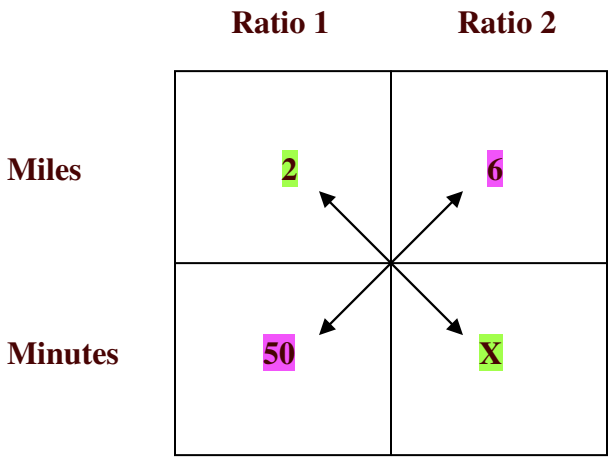
Create a square with 4 equal parts.

	Ratio 1	**Ratio 2**
Miles	**2**	**6**
Minutes	**50**	**X**

Make sure students perform cross-multiplication.

	Ratio 1	**Ratio 2**
Miles	**2**	**6**
Minutes	**50**	**X**

Solve your box:



$$\frac{2x}{2} = \frac{300}{2}$$

$$x = 150 \text{ minutes}$$

Give students several more examples using ratio boxes. Then have them complete the Ratio Boxes activity and/or Roll the Die activity. **Attachment 2 & 3**

3 Materials and Resources

Chalk/chalkboard
Student portfolio
Pencil
Die (One per student)
Overhead projector
Ratio Boxes (handout)
Roll the Die (handout)

4 Assessment

Student participation/Teacher observation
Do Now! activity
Roll the Die activity
Ratio Boxes

Attachment 1

DO NOW!

Simplify.

1. $\frac{84}{144}$

2. $\frac{27}{81}$

3. $\frac{194}{256}$

4. $\frac{38}{57}$

5. $\frac{48}{9}$

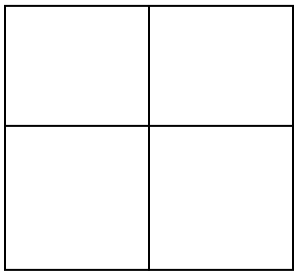
Attachment 2

Name: _____
Date: _____
Period: _____

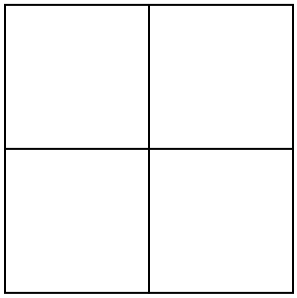
Ratio Boxes

Directions: Solve the proportions by completing the ratio box.

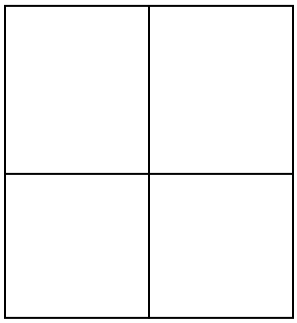
1. $\frac{5}{8} = \frac{x}{40}$



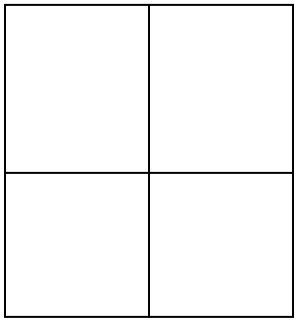
2. $\frac{x}{5} = \frac{8}{15}$



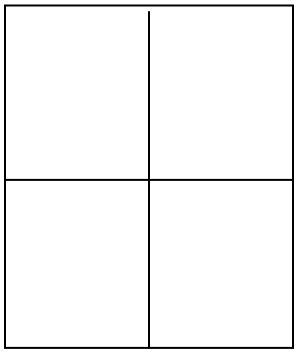
3. $\frac{7}{x} = \frac{49}{56}$



4. Sue ate a small pepperoni pizza for lunch. The pizza had 8 slices. It took Sue 90 minutes to eat the entire pizza. How many slices did she eat in the first 30 minutes?



5. Adam bought 4 roses for Erika. The roses cost $20 for one dozen. How much money did Adam spend for Erika's 4 roses?



Attachment 3

Name: _____
Date: _____
Period: _____

Roll the Die!!!!!

Directions: Roll the die and record your number. Then complete the ratio box. Round your answer to the nearest tenth.

1.

1st roll	2nd roll
3rd roll	4th roll **X**

2.

1st roll	2nd roll
3rd roll	4th roll **X**

3.

1st roll	2nd roll
3rd roll	4th roll **X**

4.

1st roll	2nd roll
3rd roll	4th roll **X**

5.

1st roll	2nd roll
3rd roll	4th roll **X**

.

6.

1st roll	2nd roll
3rd roll	4th roll **X**