

Algebra/Geometry Institute Summer 2003

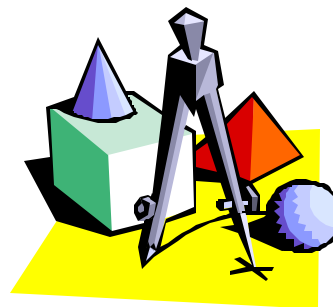
Lesson Plan 2

Faculty Name: Kathryn D. Fields

School: Solomon Middle School

City: Greenville, MS

Grade Level: 7



1 Teaching objective(s)

MS Framework: 5F, Find the area of rectangles.

2 Instructional Activities

The teacher should conduct this lesson after the concept of area has been introduced previously and the students have had practice obtaining area. In this lesson, students are to find the cost to wallpaper the classroom. The teacher will review area stating that “area is the number of square units needed to fill the inside of a two dimensional figure”. Remind them that the formula is length x width for rectangles. The teacher should demonstrate this on the overhead or board with an example.

The teacher will explain how to determine the cost to wallpaper a wall when the cost is \$8 per roll. One roll covers 20 square feet. See attachment 1. The teacher will show students how to calculate price for the total.

Teacher will pass out the materials needed.

Activity 1. Students will get into a group of 2.

- a) The student pairs will measure the height and width of each wall in the classroom and calculate the area of each wall;
- b) Students will measure the bulletin boards, chalkboards, doors, closets, etc. on the wall and subtract those area measurements from the wall’s area.
- c) The student will find the cost of the total wallpaper.

Activity 2. While each row of students is measuring the walls, students will be completing the area problems in Attachment 2.

3 Materials and Resources

100 Ft. tape measure, calculator, overhead and transparencies or chalkboard, chair and table for standing on., and attachments 1 and 2.

References:

- A. Instructional Fair Incorporated, Hands on Pre-Algebra, Grand Rapids Michigan
- B. McDougal, Lital and Company, Geometry for Enjoyment and Challenge

4 Assessment

The groups will successfully find the square footage of the four walls of the room. The square footage number of each wall should be within 5 percentage + or – of the actual. The students will also find a total square footage number. The students will find the cost of the total wallpaper needed. In addition, the students will work the 10 problems of attachment 2. 80% of the 16 questions done correctly demonstrate mastery.

Attachment 1

If one wall is 11 ft. (height) by 40 ft. (width), then the area is 440 square feet.

$$11 \text{ ft.} \times 40 \text{ ft} = 440 \text{ ft}^2$$

However, there is one bulletin board measuring 4 ft x 3 ft., so its area is 12 ft.

$$440 \text{ ft}^2 - 12 \text{ ft}^2 = 428 \text{ ft}^2 \text{ for the final area of the wall}$$

The cost per roll is \$8. One roll covers 20 square feet.

$$\frac{\$8}{20 \text{ ft}^2} \times \frac{428 \text{ ft}^2}{1} = \$171.20$$

It costs \$171.20 to cover one wall.

Use the same procedure for each of the four walls using the varying dimensions and add the costs.

$$\text{Total} = \begin{array}{cccc} \text{Wall A's} & + & \text{Wall B's} & + & \text{Wall C's} & + & \text{Wall D's} \\ \text{Cost} & & \text{Cost} & & \text{Cost} & & \text{Cost} \end{array}$$

Attachment 2

Find the area.

1. A square with a side of 11 ft.
2. A rectangle with a width of 4 cm and length of 8 cm.
3. A rectangle with a width of 4 m. and length of 8 m.
4. A rectangle with a width of 6 ft. and a length of 8 ft.
5. A rectangle with a width of 15 cm. and a length of 4 cm.
6. $\frac{1}{2}$ of a rectangle with a length of 8 units and a width of 12 units.
7. $\frac{1}{2}$ of a rectangle with a length of 12 miles and width of 5 miles.
8. A rectangle that has a width of x , a length of $9x$ and a perimeter of 60 units.
9. A rectangle that has a width of x , a length of $6x$ and a perimeter of 56 ft
10. A rectangle that has a width of x , a length of $6x$, and a perimeter of 26 cm.

Attachment 2. Answers

Find the area.

1. A square with a side of 11 ft.

121 sq ft.

2. A rectangle with a width of 4 cm and length of 8 cm.

32 sq. cm

3. A rectangle with a width of 4 m. and length of 8 m.

32 sq. m.

4. A rectangle with a width of 6 ft. and a length of 8 ft.

48 sq. ft.

5. A rectangle with a width of 15 cm. and a length of 4 cm.

60 sq. cm

6. $\frac{1}{2}$ of a rectangle with a length of 8 units and a width of 12 units.

48 sq. units

7. $\frac{1}{2}$ of a rectangle with a length of 12 miles and width of 5 miles.

30 sq. miles

8. A rectangle that has a width of x , a length of $9x$ and a perimeter of 60 units.

324 sq units

9. A rectangle that has a width of x , a length of $6x$ and a perimeter of 56 ft

96 sq. ft.

10. A rectangle that has a width of x , a length of $6x$ and a perimeter of 26 cm.

24 sq. cm.