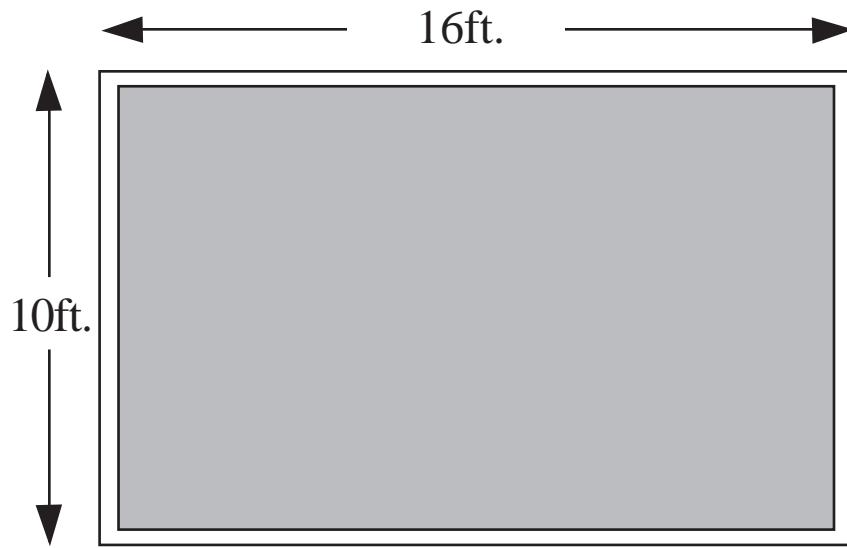


Name: _____ Date: _____

Don't Tread on Me

Area

Connie is trying to decide on carpeting for her new apartment's living room. The room is 16' by 10'. The carpeting costs \$7.00 per square yard, is manufactured in 9' and 15' widths, and is sold in full width running feet. Installation cost \$0.50 per square foot plus \$0.10 per foot for splicing seams. Connie has the choice of having a border (half of a foot on each side) on her carpet or having no border. She can choose the 9' width or the 15' width. Find the cost of materials and labor for the carpet for each of the three options. Which should Connie choose?



Option 1 : With border of 1/2 ft. on each side _____

Option 2: No border; 9' widths _____

Remember - There are several ways to use a 9' width on the room etc.

Thinking Cap

Is there a pattern to finding the most economical method? Research with someone that lays carpet. What effect does the choice of pile do to the options?

Don't Tread on Me

Area

Using this Activity:

The teacher may want to work a simpler example with the students prior to this activity in order to emphasize that there are several possibilities for each width of carpet. This activity also ignores any effect certain pile carpets would have on the solution. The students should also be reminded to either convert the feet to yards at the beginning or remember to divide by square yds (9) at the end. They also need to remember to use the feet when determining the cost for installation.

Objective: Use the calculator to solve problems involving area and cost

NCTM Standards: Mathematics as Problem Solving; Mathematical Connections; Geometry; Measurement

Possible Answers:

$$\text{Installation for all carpets} = \$.50 \times (16 \times 10) = \$80.00$$

Option 1: with border TOTAL COST = \$ 231.33

$$\text{Carpet (center)} = (15 \times 9) \div 9 = 15 \text{ sq. yd.} \times \$7.00 = \$105.00$$

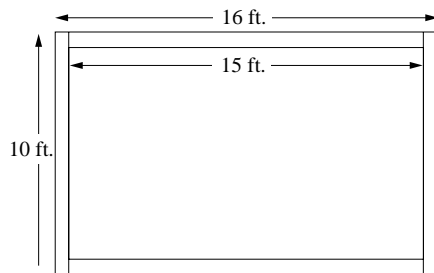
$$\text{Carpet (border)*} = \left(\frac{1}{2} \text{ by } 15'\right) + \left(\frac{1}{2} \text{ by } 15'\right) + \left(\frac{1}{2} \text{ by } 10'\right) + \left(\frac{1}{2} \text{ by } 10'\right)$$

$$= 15' \left(\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2}\right) = 15' \times 2' = 30 \text{ Sq. Ft.}$$

$$= 3.33 \text{ sq. yd.} \times \$7.00 = \$23.33$$

*Need a 15' width for these strips since that is the largest width

$$\text{Splices} = 10' + 15' + 10' + 15' = 50' \times \$0.10 = \$5.00$$



Option 2: with 9' widths TOTAL COST = \$207.70

$$\text{Carpet} = (9 \times 16) + (9 \times 1) + (9 \times 1) * = 162 \text{ sq. ft.}$$

$$= 18 \text{ sq. yd} \times \$7.00 = \$126.00$$

$$\text{Splicing} = 16' + 1' = 17' \times \$0.10 = \$1.70$$

* Only need 7' by 1' but the carpet doesn't come in 7' widths.

