

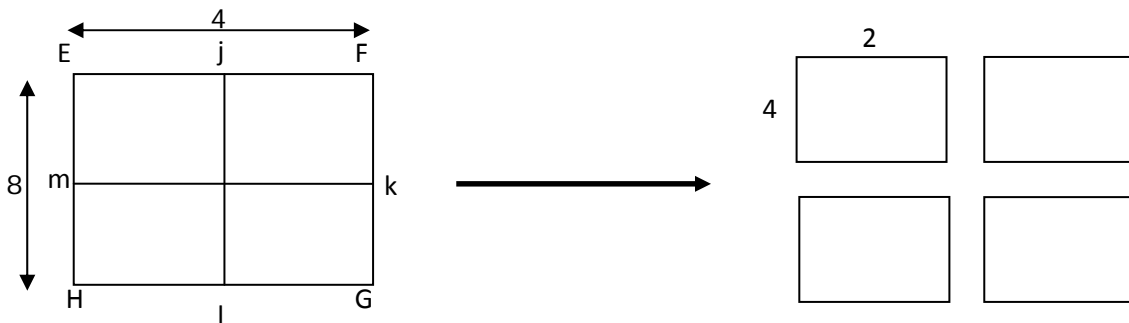
Using Tiling to Find Area - Guided Lesson Explanation

Explanation # 1

Step 1) Find the area of the rectangle. We want to match that to the area of the pieces we are going to break it into.

$$\begin{aligned} \text{Area of rectangle} &= \text{Length} \times \text{Width} \\ &= 4 \times 8 \\ &= 32 \end{aligned}$$

Step 2) Join the midpoint of each side to the midpoint of the opposite side



Step 3) When we make these lines the height and width of each box is half of the original box:

$$\text{Original} - \text{Height} = 8 \quad \text{Width} = 4$$

$$\text{Each Box} - \text{Height} = 8/2 = 4 \quad \text{Width} = 4/2 = 2$$

$$\text{Area of each box} = 4 \times 2 = 8$$

Step 4) Our original area was 32. When we add up the area of all the boxes, we should get the same number.

$$\text{Total Area} = \text{Box 1 Area} + \text{Box 2 Area} + \text{Box 3 Area} + \text{Box 4 Area}$$

$$32 = 8 + 8 + 8 + 8$$

We successfully broke the box up into four pieces because our area of the boxes is equal to our original area.



Name _____

Date _____

Explanation # 2

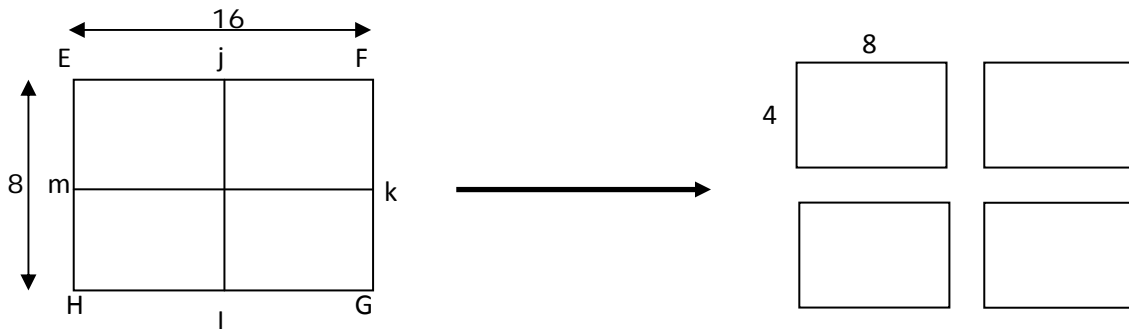
Step 1) Find the area of the rectangle. We want to match that to the area of the pieces we are going to break it into.

Area of rectangle = Length X Width

$$= 16 \times 8$$

$$= 128$$

Step 2) Join the midpoint of each side to the midpoint of the opposite side



Step 3) When we makes these lines the height and width of each box is half of the original box:

Original - Height = 16 Width = 8

Each Box - Height = $16/2 = 8$ Width = $8/2 = 4$

Area of each box = $8 \times 4 = 32$

Step 4) Our original area was 32. When we add up the area of all the boxes, we should get the same number.

Total Area = Box 1 Area + Box 2 Area + Box 3 Area + Box 4 Area

$$128 = 32 + 32 + 32 + 32$$

We successful broke the box up into four pieces because the area of the boxes is equal to our original area.



Name _____

Date _____

Explanation # 3

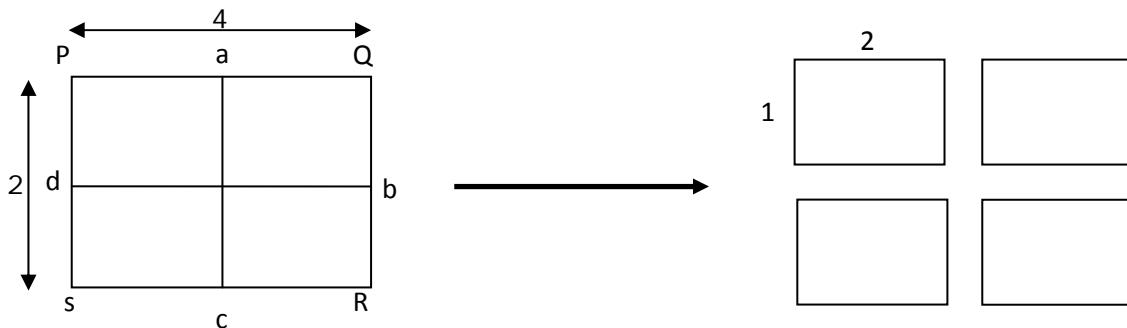
Step 1) Find the area of the rectangle. We want to match that to the area of the pieces we are going to break it into.

Area of rectangle = Length X Width

$$= 4 \times 2$$

$$= 8$$

Step 2) Join the midpoint of each side to the midpoint of the opposite side



When we make these lines the height and width of each box is half of the original box:

Original - Height = 2 Width = 4

Each Box - Height = $2/2 = 1$ Width = $4/2 = 2$

Area of each box = $1 \times 2 = 2$

Step 4) Our original area was 8. When we add up the area of all the boxes, we should get the same number.

Total Area = Box 1 Area + Box 2 Area + Box 3 Area + Box 4 Area

$$8 = 2 + 2 + 2 + 2$$

We successfully broke the box up into four pieces because our area of the boxes is equal to our original area.

