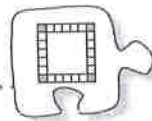


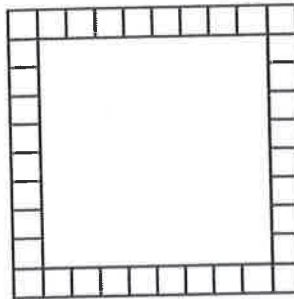
## 4.1.2 How many ways can I represent it?



### Writing Equivalent Expressions

4-12. Look at the frame built with tiles below. Then use the diagram to complete parts (a) through (c) below.

a) Without talking to your teammates or counting every single tile, find the number of tiles in the frame mentally. Be ready to share your method and how you see it with your team and with the class.



b) When everyone in your team is ready, share your methods one at a time. Be sure to explain to your teammates how your steps or process connect back to the drawing itself.

c) Pam told her team that when she first looked at the figure she thought that there were 40 tiles in the frame. Explain how Pam might have been looking at the drawing to see this answer and what she might have overlooked.

4-13. Below are some methods that students from another class used to find the number of tiles in problem 4-12. Which ones are like the ones that students in your group came up with? Which ones are new or different? For each new method, your teacher will help you record and color-code it onto your resource page.

Jonas' Method:  $4 \cdot 10 - 4$

TJ's Method:  $4 \cdot 8 + 4$

Curran's Method:  $10 + 9 + 9 + 8$

Alyssa's Method:  $9 \cdot 4$

Tina's Method:  $10 + 10 + 8 + 8$

Ramond's Method:  $10 \cdot 10 - 8 \cdot 8$

4-14. Now imagine that the frame from problem 4-12 has been shrunk so that it is 6 tiles by 6 tiles. Consider the following questions without drawing the frame.

a) Choose one of the methods for counting the tiles and use it to find the number of tiles in that square's frame.

b) Choose another method and use it to find the number of tiles in the 6-by-6 frame. Did you get the same answer using both methods? Should you?

method. you should get the same answer because the expressions are supposed to be equivalent.

4-12

b)

c)

4-13

4-14

4-12 a) I think that there are \_\_\_\_\_ tiles. I got my answer by.....

b) Group share

c) Pam is wrong because she might have double counted the corners and thought there were 10 on each side.

4-13 On resource page

4-14 a) I chose Jonas' method :

$$\begin{array}{l} 4 \cdot (6) - 4 \\ 24 - 4 \\ 20 \end{array}$$

} There would be 20 tiles.

b) I chose Curran's method :

$$\begin{array}{l} 6 + 5 + 5 + 4 \\ 6 + 10 + 4 \\ 10 + 10 \\ 20 \end{array}$$

} There would be 20 tiles.

I got the same answer using either method. You should get the same answer because the expressions are supposed to be equivalent.