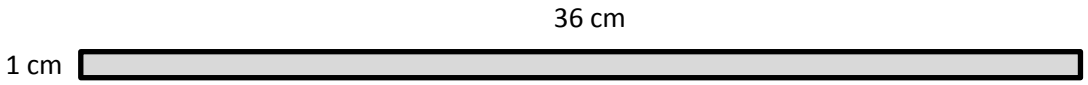
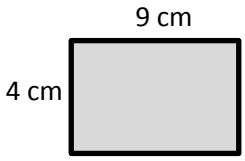
Name _____ Date _____

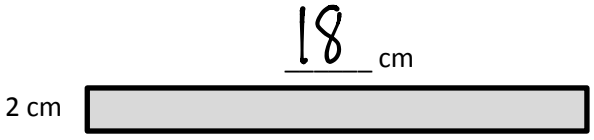
1. The rectangles below have the same area. Move the ( ) to find the missing side lengths. Then solve.



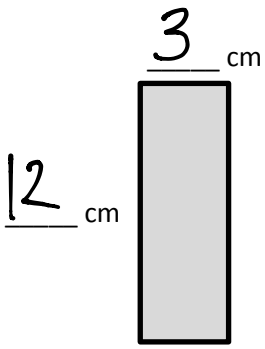
b. Area: 1 × 36 = 36 sq cm



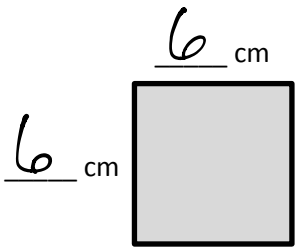
a. Area: 4 × 9 = 36 sq cm



b. Area: **4 × 9** = (2 × 2) × 9
= 2 × (2 × 9)
= 2 × 18
= 36 sq cm



c. Area: **4 × 9** = 4 × (3 × 3)
= (4 × 3) × 3
= 12 × 3
= 36 sq cm



d. Area: **12 × 3** = (6 × 2) × 3
= 6 × (2 × 3)
= 6 × 6
= 36 sq cm

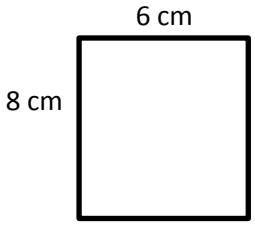
2. Does Problem 1 show all the possible whole number side lengths for a rectangle with an area of 36 square centimeters? How do you know?

1 × 36
2 × 18
3 × 12
4 × 9
6 × 6

We know that we found all of the possible whole number side lengths because there is no other number that can be multiplied to equal 36.

3.

a. Find the area of the rectangle below.



$8 \times 6 = 48$

48 sq. cm.

b. Hilda says a 4 cm by 12 cm rectangle has the same area as the rectangle in Part (a). Place ( ) in the equation to find the related fact and solve. Is Hilda correct? Why or why not?

$4 \times 12 = 4 \times (2 \times 6)$
$= (4 \times 2) \times 6$
$= 8 \times 6$
$= 48$ sq cm

$8 \times 6 = 48$
$4 \times 12 = 48$

Both rectangles have an area of 48 sq cm.

c. Use the expression 8×6 to find different side lengths for a rectangle that has the same area as the rectangle in Part (a). Show your equations using ( ). Then estimate to draw the rectangle and label the side lengths.

$8 \times 6 = 8 \times (2 \times 3)$
$= (8 \times 2) \times 3$
$= 16 \times 3$

or

$8 \times 6 = (2 \times 4) \times 6$
$= 2 \times (4 \times 6)$
$= 2 \times 24$