Name: .... Class: ....
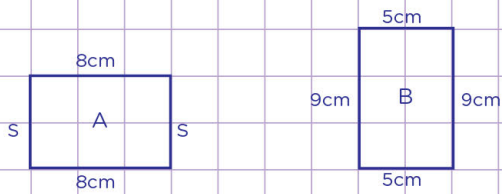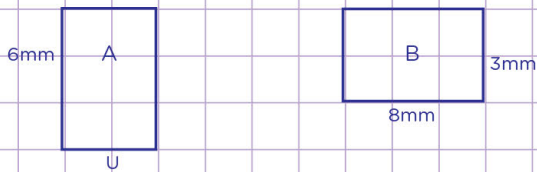
Relationship between area and perimeter

a. The rectangles below have the same perimeter. Find the area of rectangle A.

```
        8cm              5cm
    ┌─────────┐       ┌───────┐
 S  │    A    │ S  9cm│   B   │9cm
    └─────────┘       └───────┘
        8cm              5cm
```

b. The rectangles below have the same area. Find the perimeter of A.

```
    ┌─────┐           ┌─────────┐
6mm │  A  │           │    B    │3mm
    │     │           └─────────┘
    └─────┘               8mm
      U
```

mathskills4kids

Name: .... Class: ....

Relationship between area and perimeter

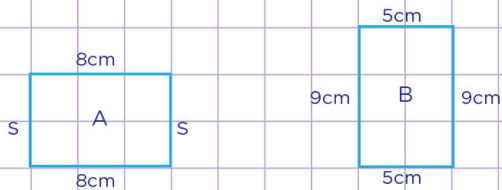**a.** The rectangles below have the same perimeter. Find the area of rectangle A.

Let's first of all find the perimeter of rectangle B.

Perimeter of rectangle B = (9 + 5 + 9 + 5) cm = 28cm

Now, since both rectangles have the same perimeter, we can use the perimeter of rectangle B to find the missing side lengths of rectangle A.

So, 28cm = 8cm + S + 8cm + S, 28cm = 16cm + 2S, 28cm - 16cm = 16cm + 2S - 16cm, 12cm = 2S, 6cm = S

So, the missing side lengths of rectangle A are 6cm and 6cm.

Finally, let's find the area of rectangle A.

Area of rectangle A = length X width = 8cm X 6cm = 48cm²

Therefore, the area of rectangleA = 48 sqaure centimeters.

b. The rectangles below have the same area. Find the perimeter of A.

Let's first of all find the perimeter of perimeter of rectangle B.

Perimeter of rectangle B = (8 + 3 + 8 + 3) mm = 22mm

Now, since both rectangles have the same perimeter, let's use the perimeter of rectangle B to find the missing side length of rectangle A

So, 22mm = 6mm + U + 6mm + U, 22mm = 12mm + 2U, 22mm - 12mm = 12mm + 2U - 12mm, 10mm = 2U, 5mm = U

So, the side length of rectangle A is 5mm.

Finally, let's find the perimeter of rectangle A

Perimeter of rectangle A = 6mm + 5mm + 6mm + 5mm = 22mm

Therefore, the perimeter of rectangle A = 22 millimeters.