

## IDENTITIES

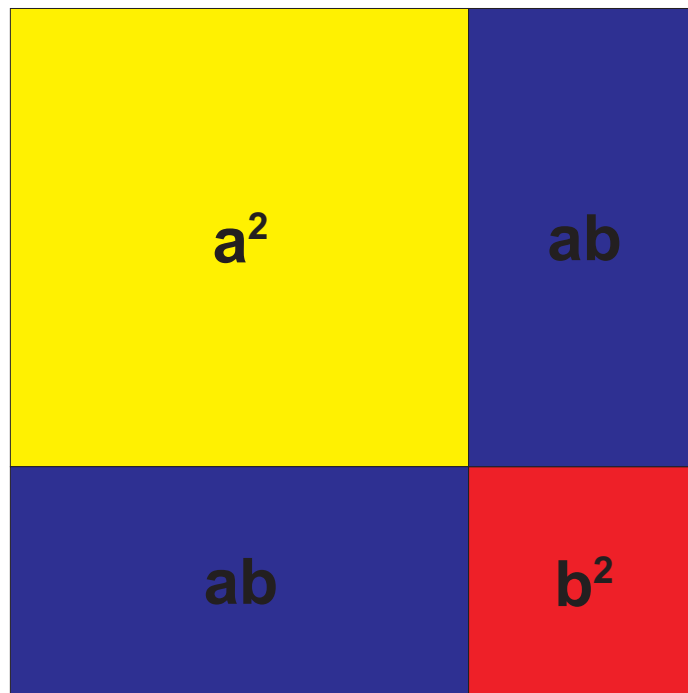
Use 4 pieces in the kit to learn identities.

You know that

1) area of a rectangle of sides  $a$  and  $b$  is  $(a \times b)$ .

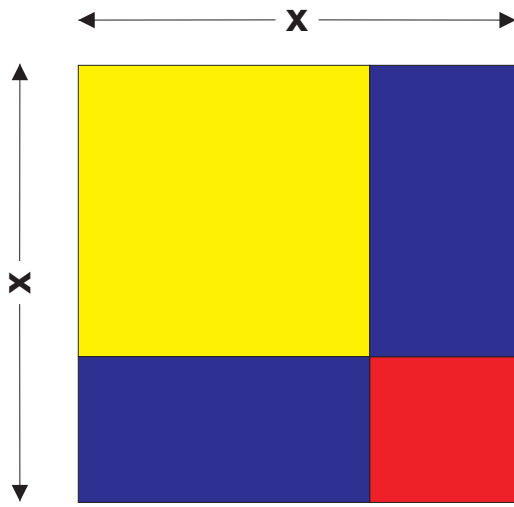
2) Therefore  $a^2$  is the area of a square of side  $a$ .

$$(a+b)^2$$

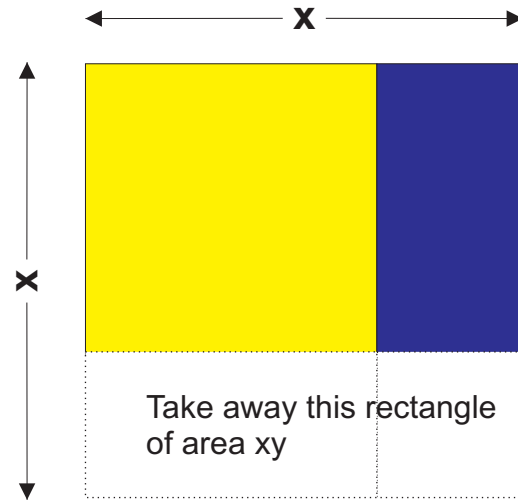


$$a^2 + 2ab + b^2 = (a+b)^2$$

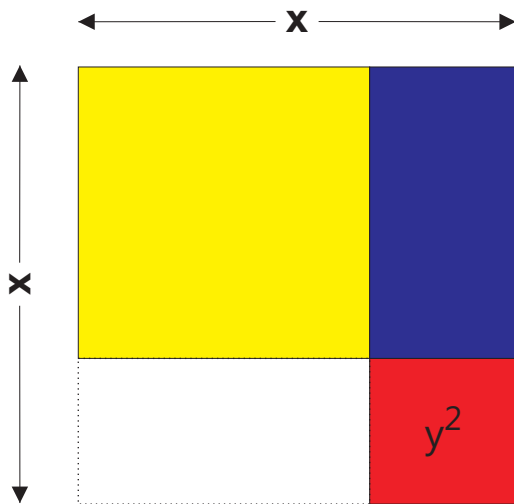
$$(x-y)^2$$



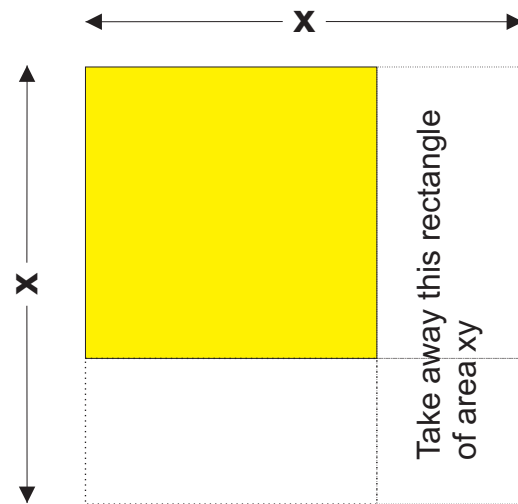
Total area =  $x^2$



Area =  $x^2 - xy$



Add the red square.  
Area =  $x^2 - xy + y^2$

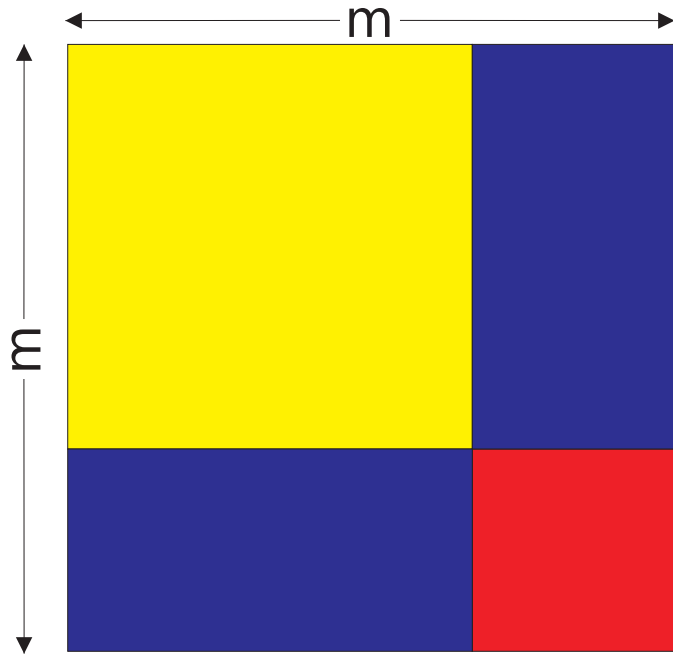


Add the red square.  
Area =  $x^2 - xy + y^2 - xy$

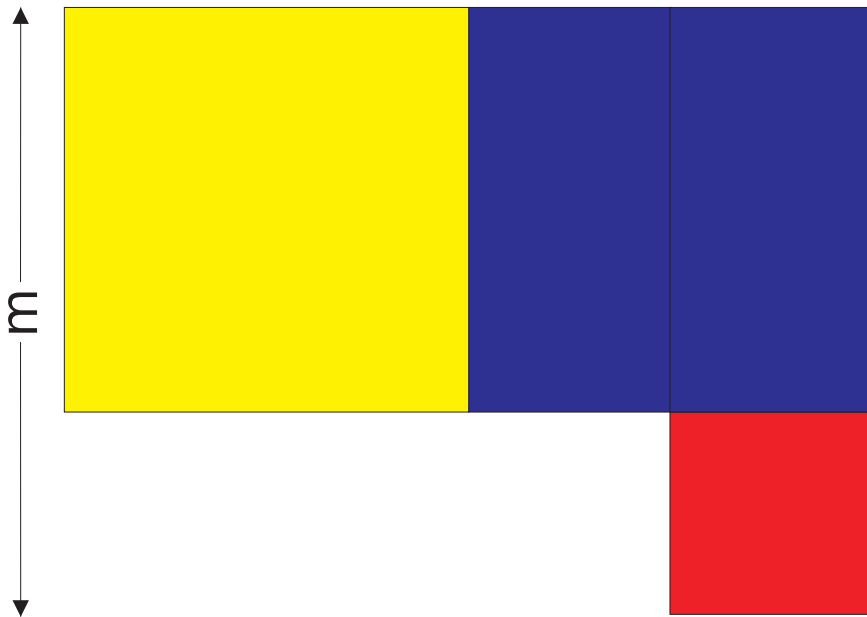
The side of remaining square is  $x - y$

Thus,  $(x-y)^2 = x^2 - 2xy + y^2$

$$m^2 - n^2$$

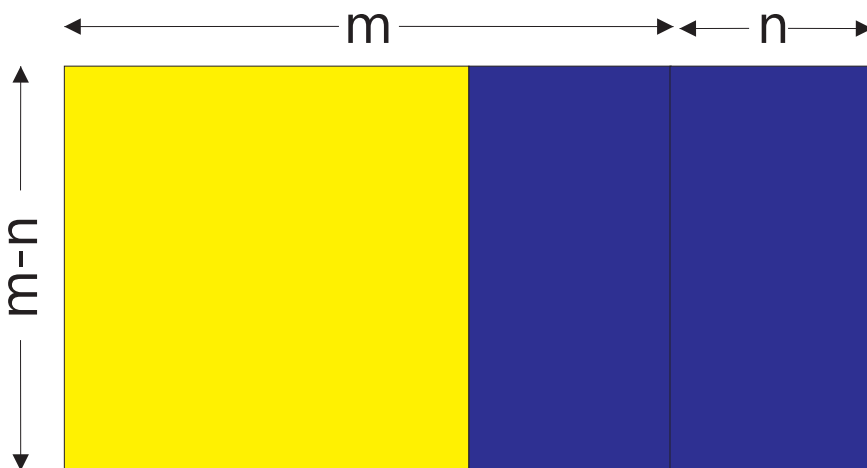


Total area is  $m^2$



Rearranged as shown.

Total area is still  $m^2$



Take away red square.

The area is  $m^2 - n^2$

Which is  
 $(m+n)(m-n)$