



Algebra through Geometry



Our Role

100%
professional
development...



Our Role

100%
professional
development...
collect & retell
stories of success



Core Curriculum

Learning to work
like a mathematician



Core Curriculum

Learning to work
like a mathematician

...and the teaching
craft that fascinates,
captivates & absorbs

STARTING OUT

Square ... Shape X



STARTING OUT

Square ... Shape X



What can we say about its area?

STARTING OUT

Square ... Shape X



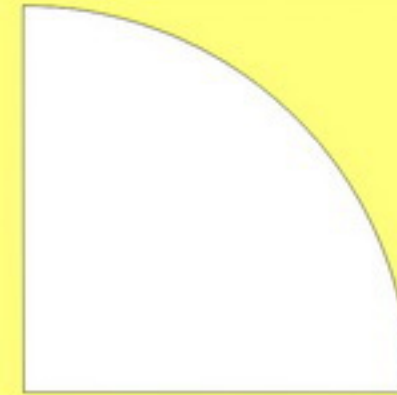
X has an area.

We don't know the
value of its area.

We will use x to
stand for its area.

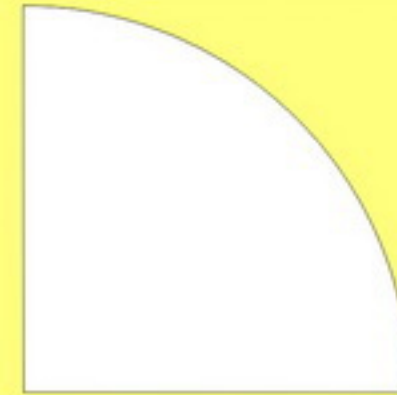
ADDING INTEREST

Quadrant ... Shape Y



ADDING INTEREST

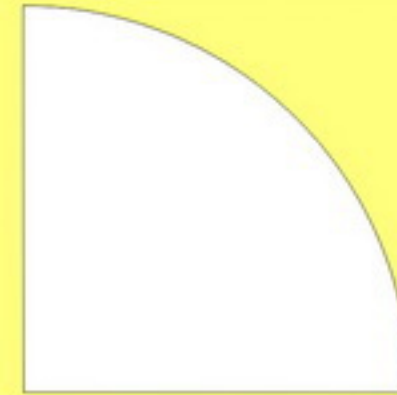
Quadrant ... Shape Y



What can we say about its area?

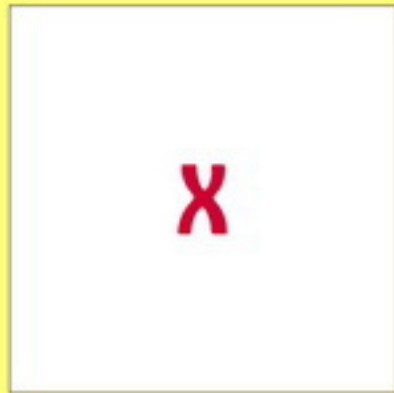
ADDING INTEREST

Quadrant ... Shape Y

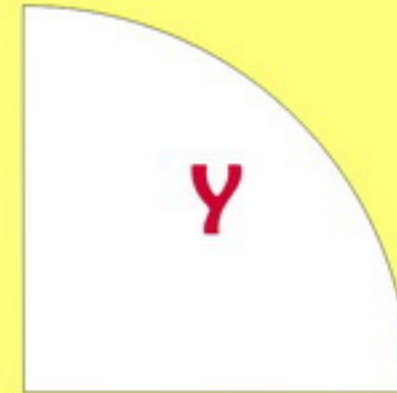


Y has an area.
We don't know the
value of its area.
We will use **y** to
stand for its area.

KNOWN UNKNOWN



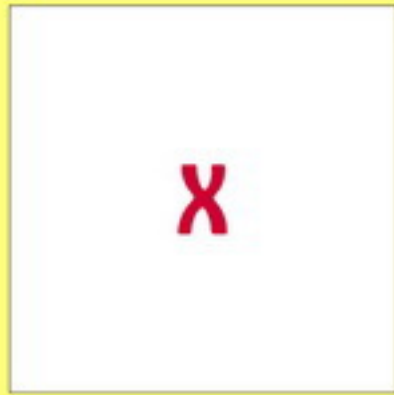
Area = x



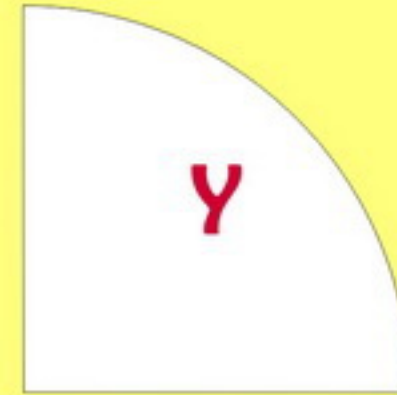
Area = y

Use X to draw a shape with area = $2x$
How many solutions are there?

KNOWN UNKNOWNNS



Area = x



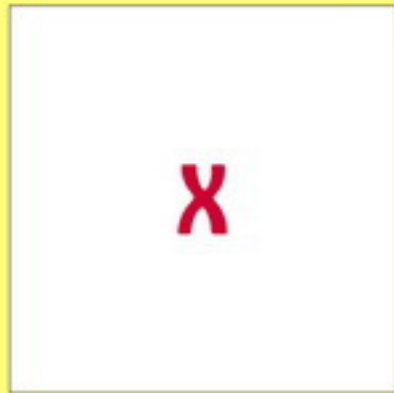
Area = y

Use X to draw a shape with area = $3x$

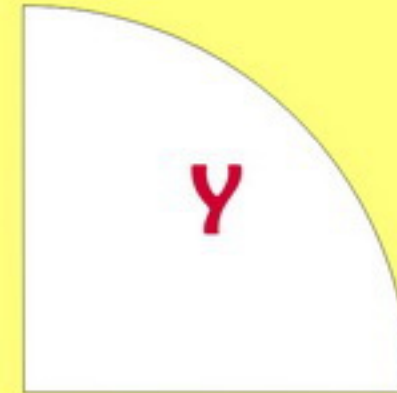
How many solutions are there?

How do you know when you have found them all?

KNOWN UNKNOWN



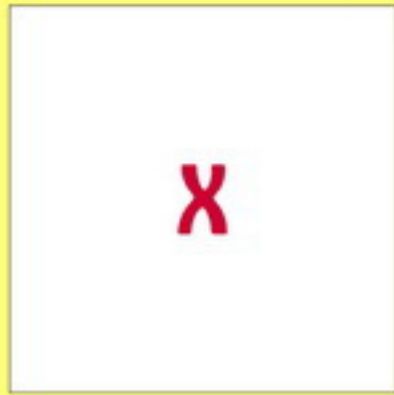
Area = x



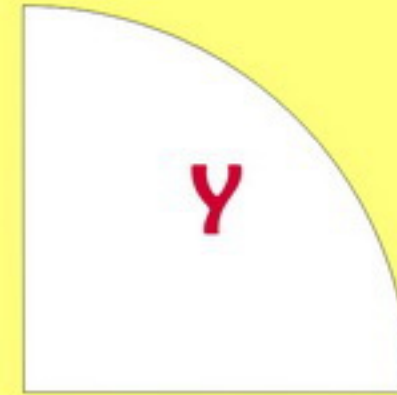
Area = y

Use Y to draw a shape with area = $2y$
How many solutions are there?

KNOWN UNKNOWNNS



Area = x



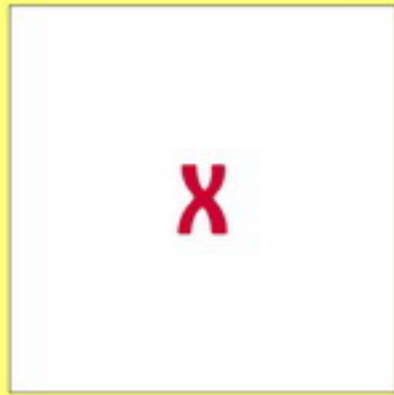
Area = y

Use Y to draw a shape with area = $3y$

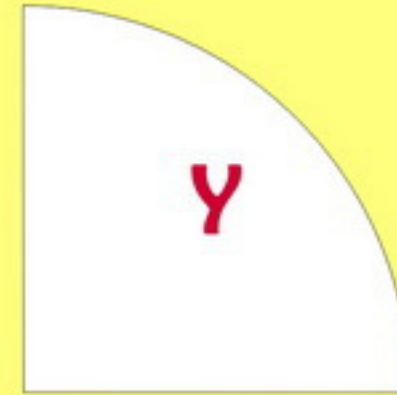
How many solutions are there?

How do you know when you have found them all?

KNOWN UNKNOWNNS



Area = x



Area = y

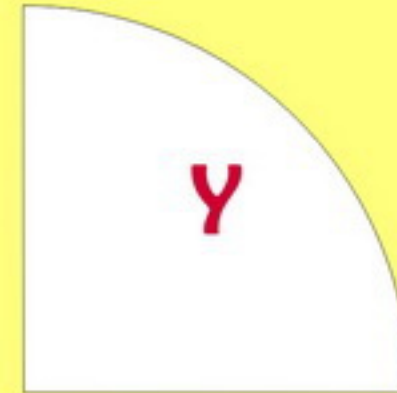
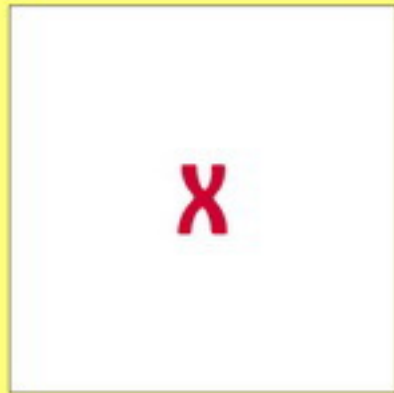
Your Choice

Investigate one or two of these.

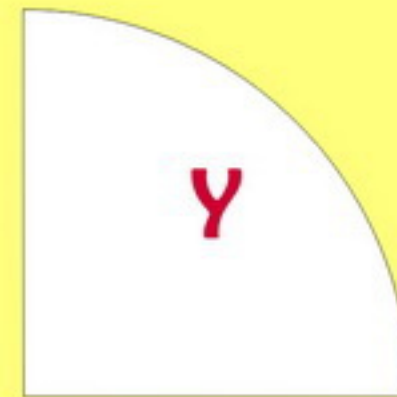
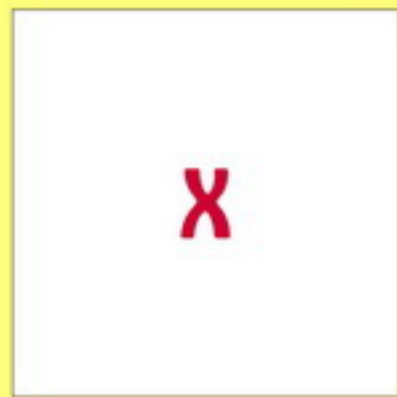
Shapes with area $4x$ or $5x$.

Shapes with area $4y$ or $5y$.

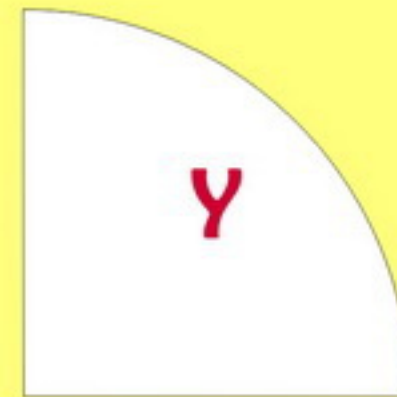
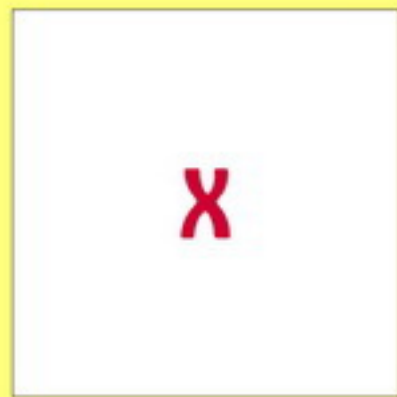
GETTING TOGETHER



GETTING TOGETHER

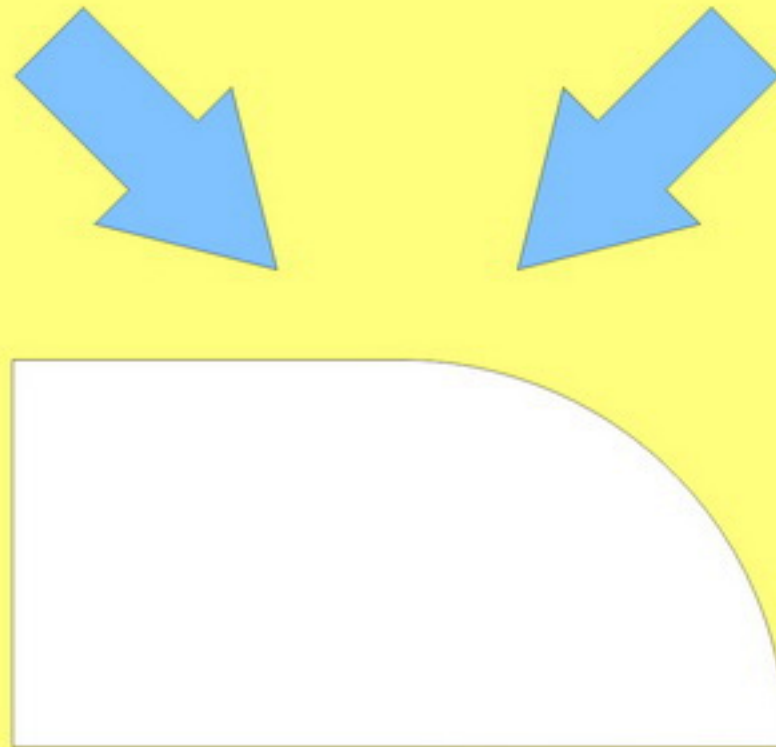


GETTING TOGETHER

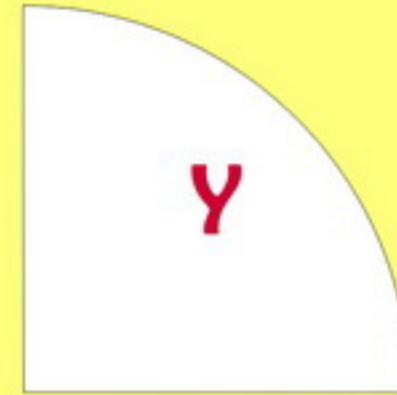
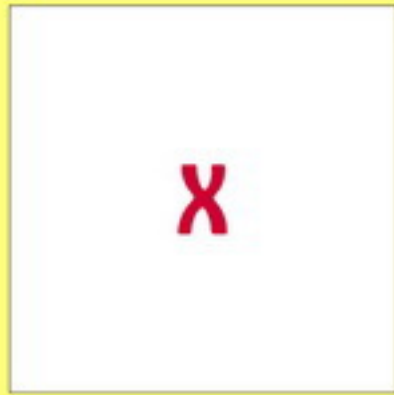


GETTING TOGETHER

Area?



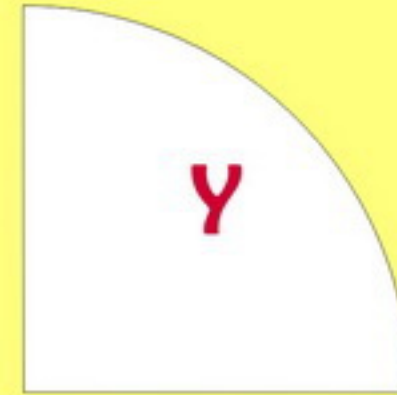
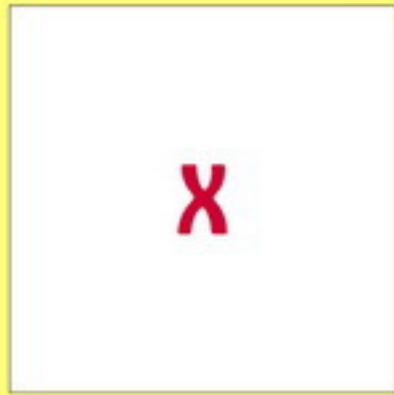
GETTING TOGETHER



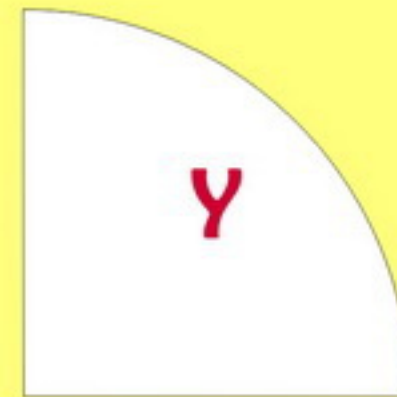
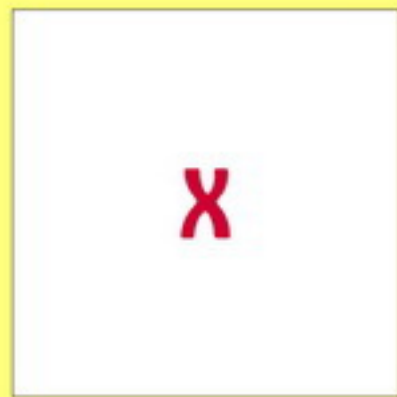
Use Xs and Ys to make 3 interesting shapes.

Record the area of each shape.

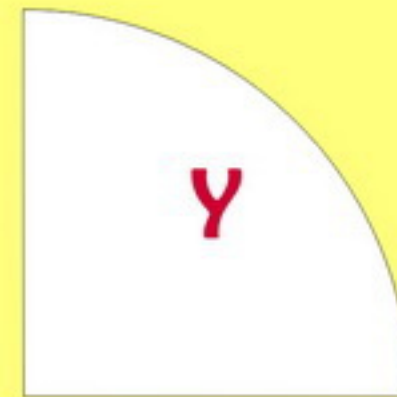
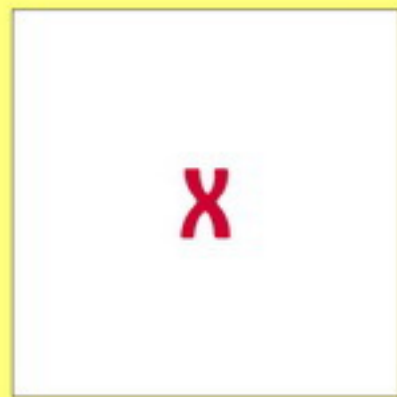
BREAKING APART



BREAKING APART

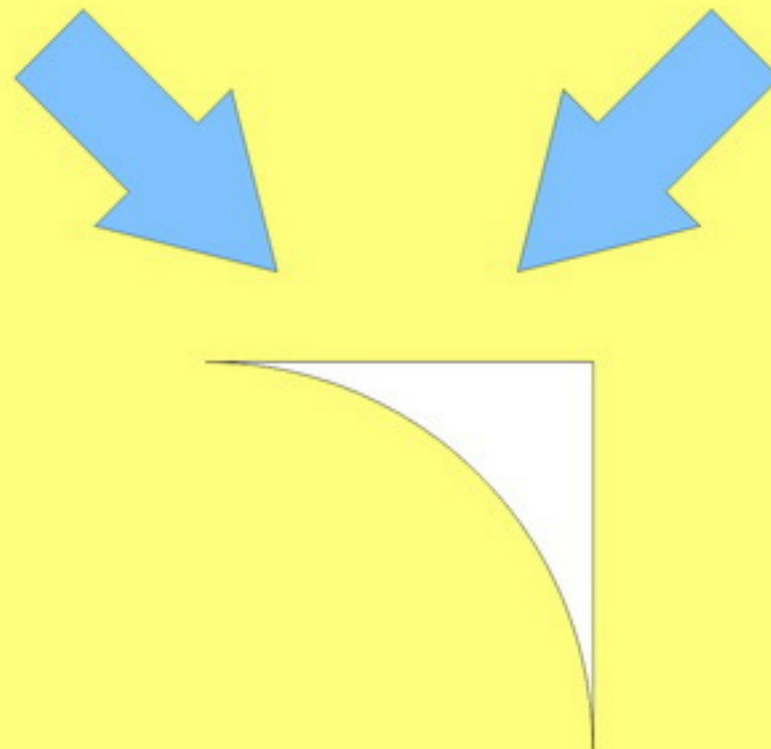


BREAKING APART

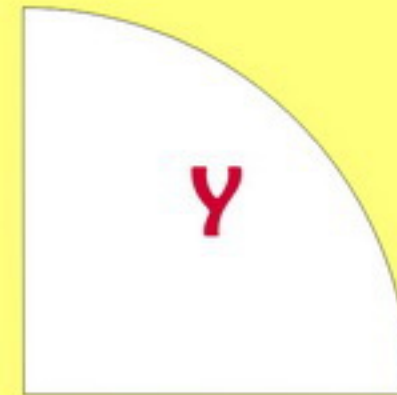
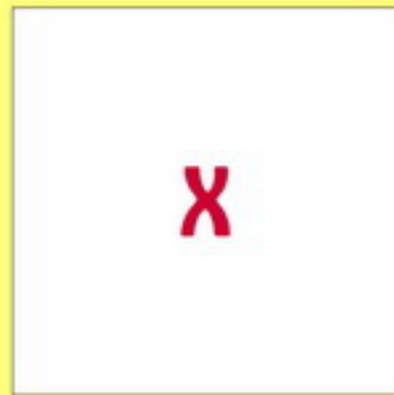


BREAKING APART

Area?

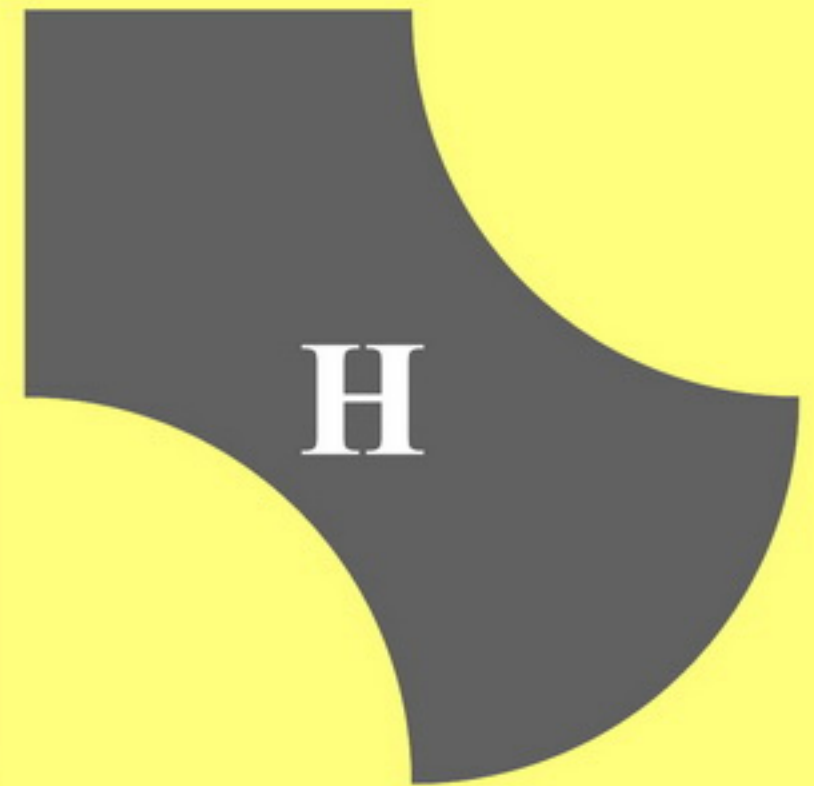
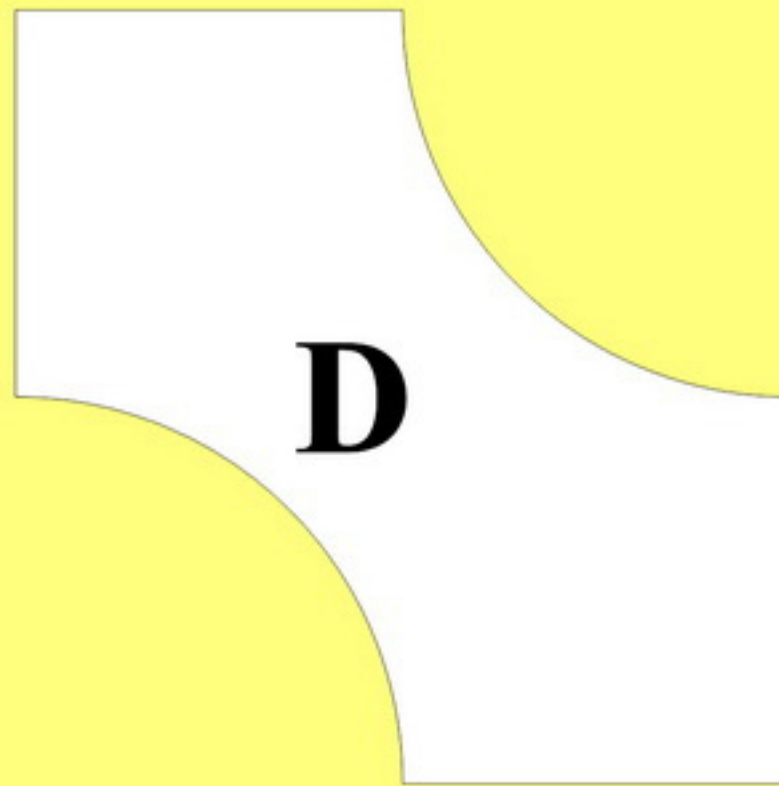
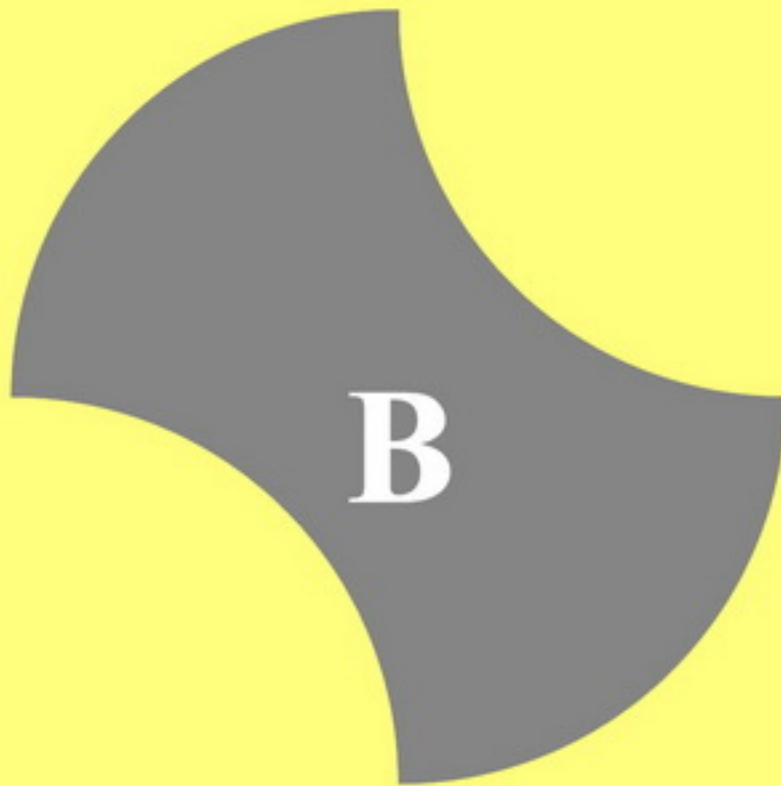


GETTING TOGETHER



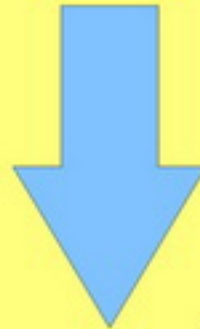
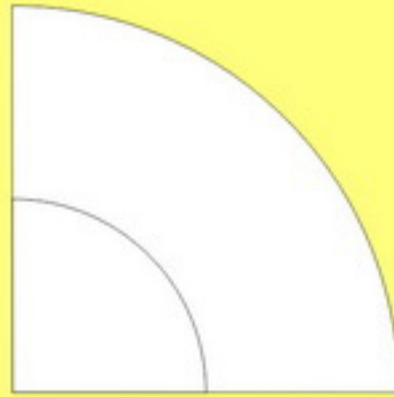
**Use Xs and Ys to make 3 interesting shapes.
Each shape must include at least one $(x - y)$ area.
Record the area of each shape.**

SHAPES & SIZES

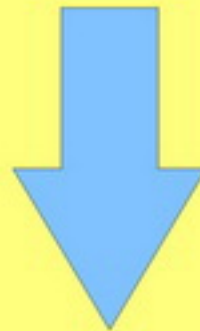
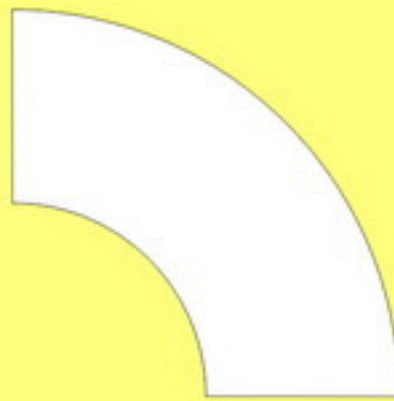


**Find the area of each of these TakTiles.
Record.**

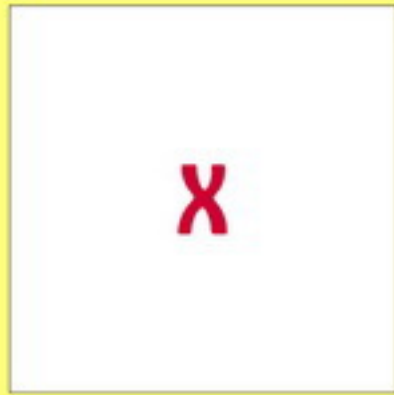
SHAPES & SIZES



SHAPES & SIZES



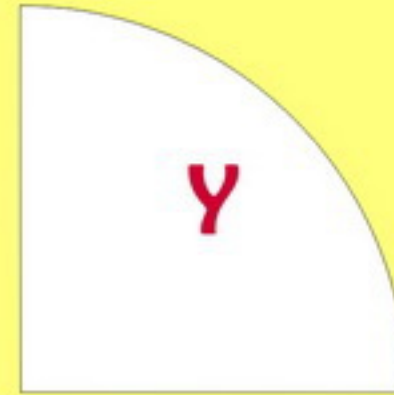
SHAPES & SIZES



Area = x

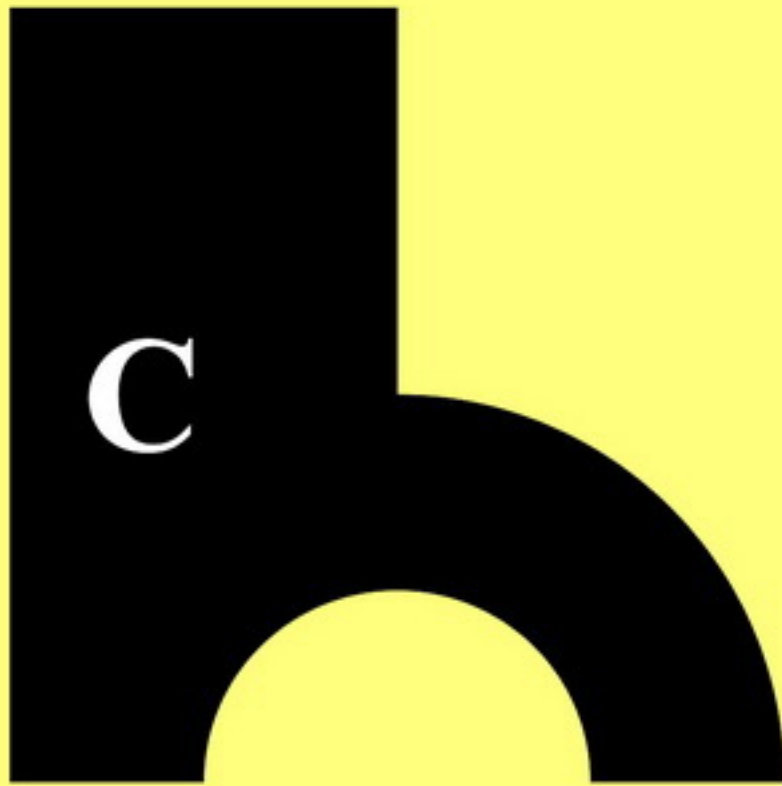


Area = $\frac{1}{4}y$



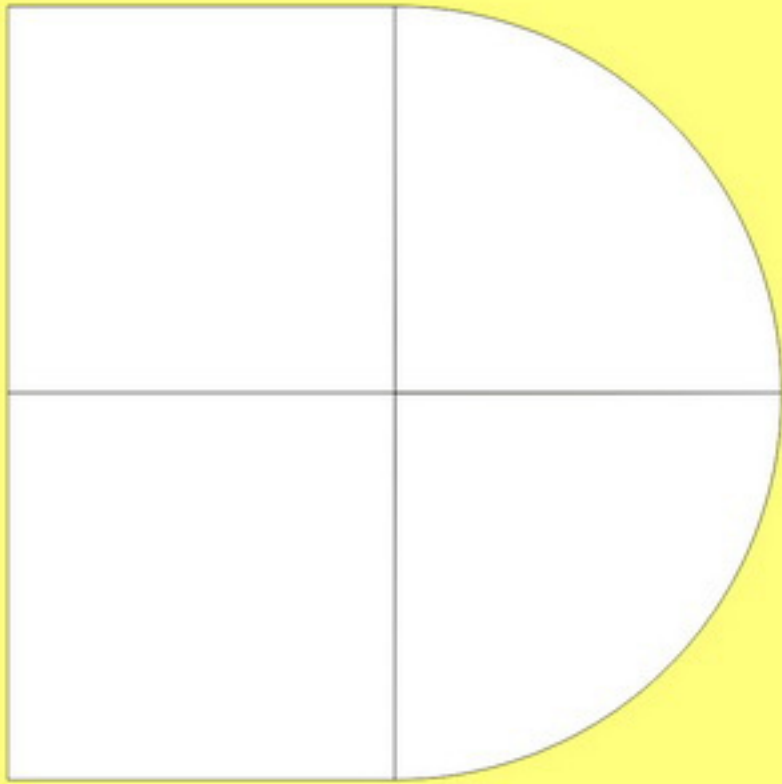
Area = y

SHAPES & SIZES



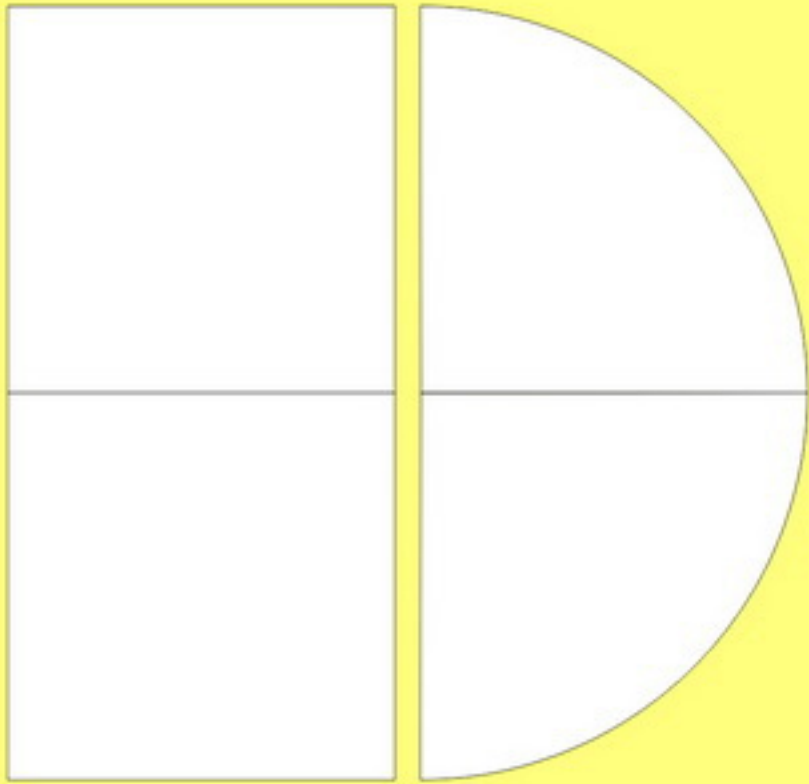
**Find the area of each of these TakTiles.
Record.**

TWO WAYS

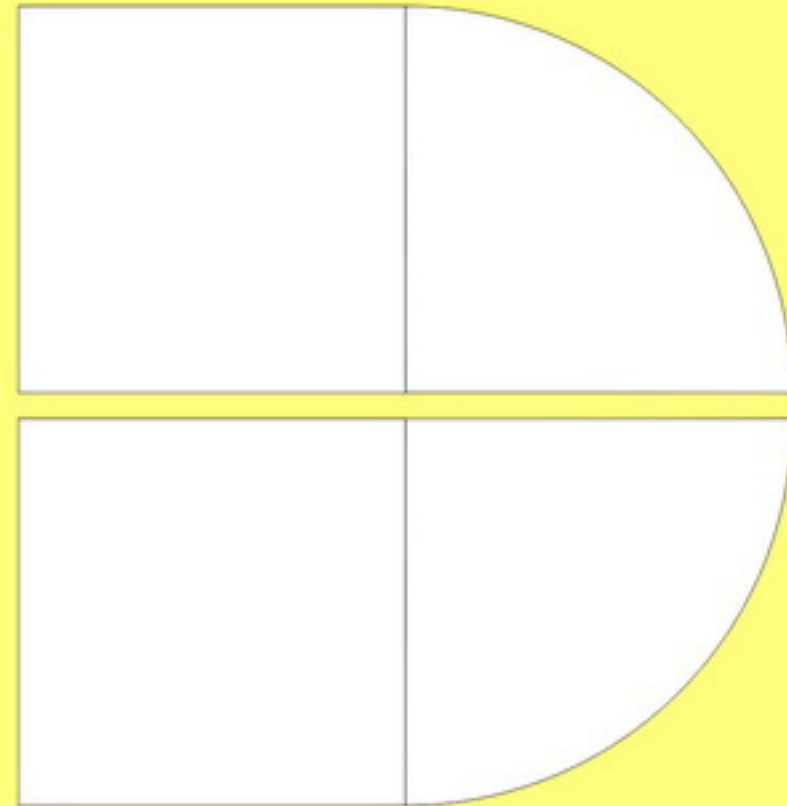


Calculate the area

TWO WAYS



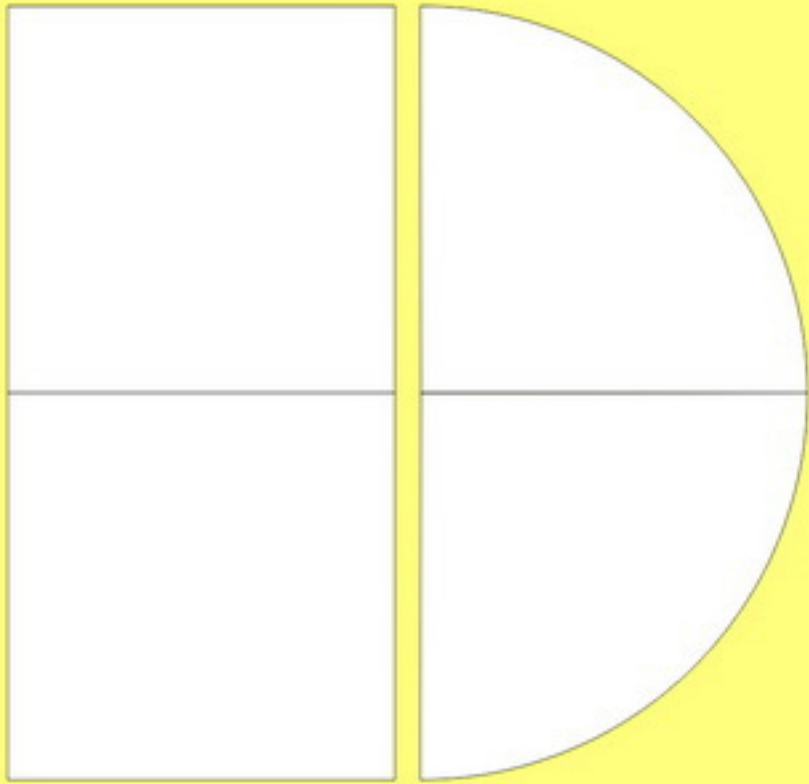
Area = ...



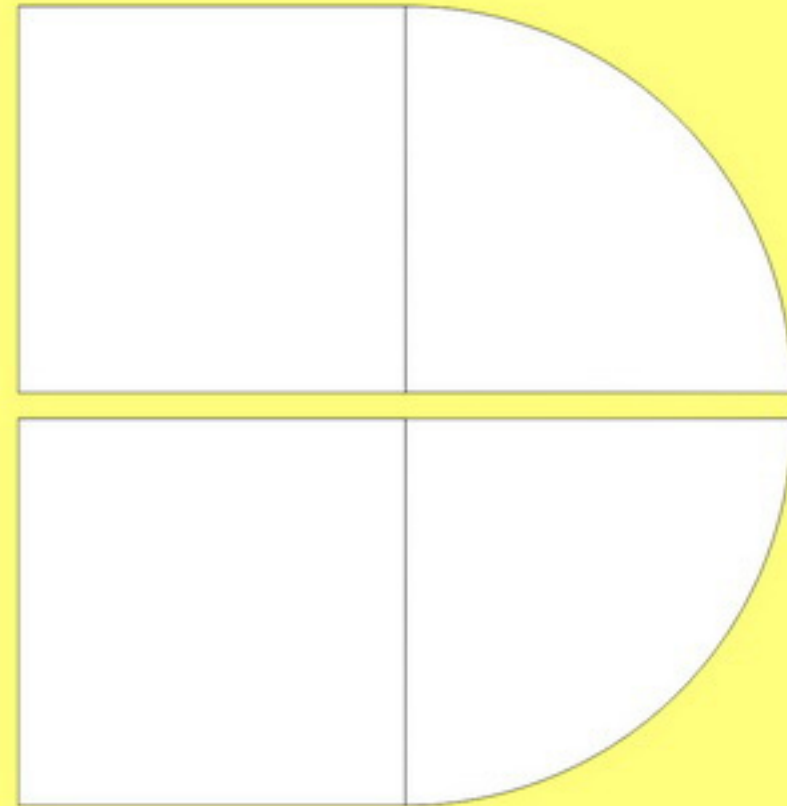
Area = ...

Record

TWO WAYS



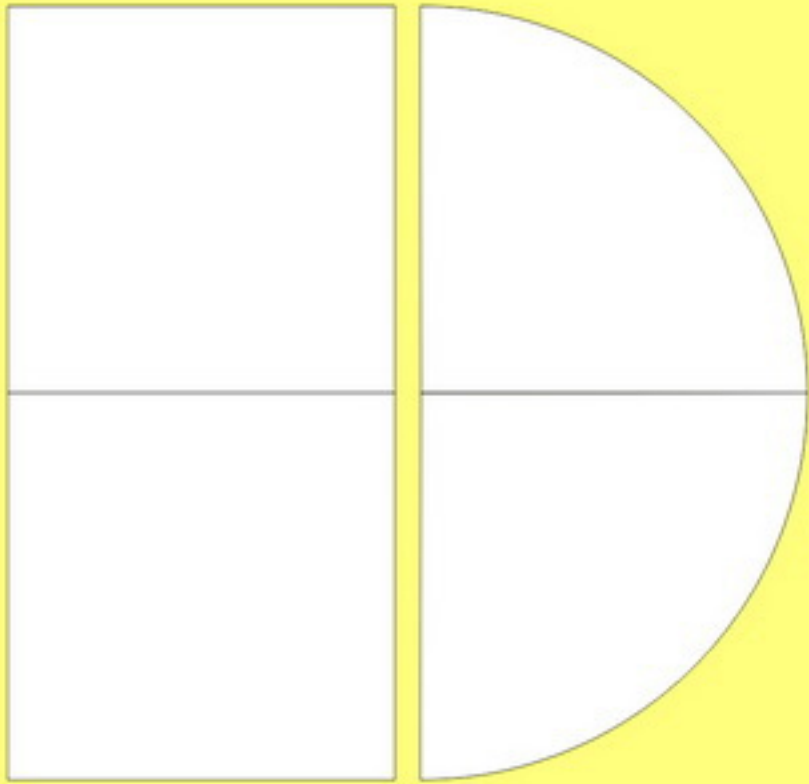
Area = ...



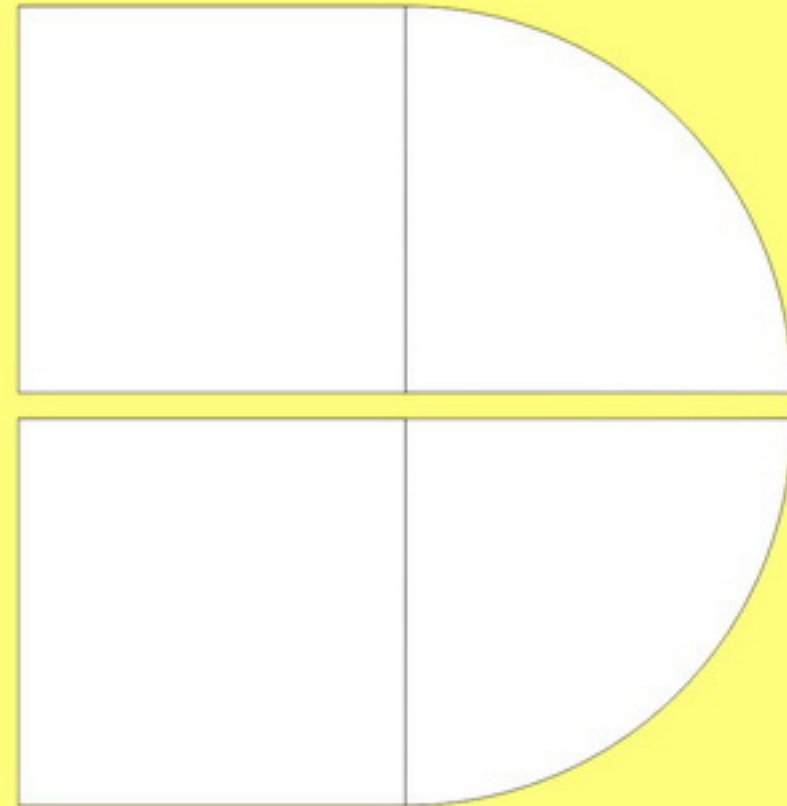
Area = ...

One shape. Two ways to calculate area. So...

TWO WAYS



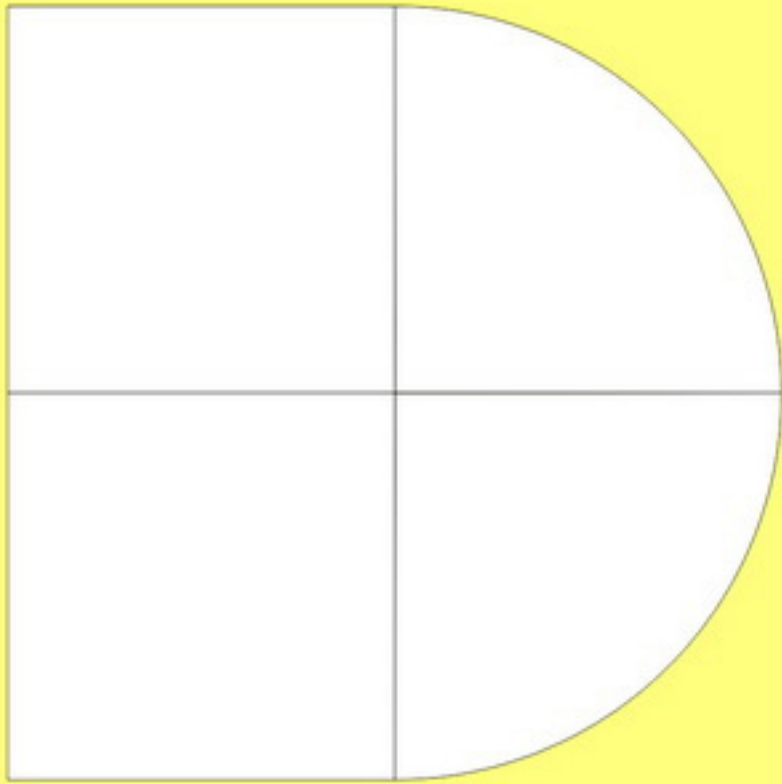
Area = ...



Area = ...

$$2x + 2y = 2(x + y)$$

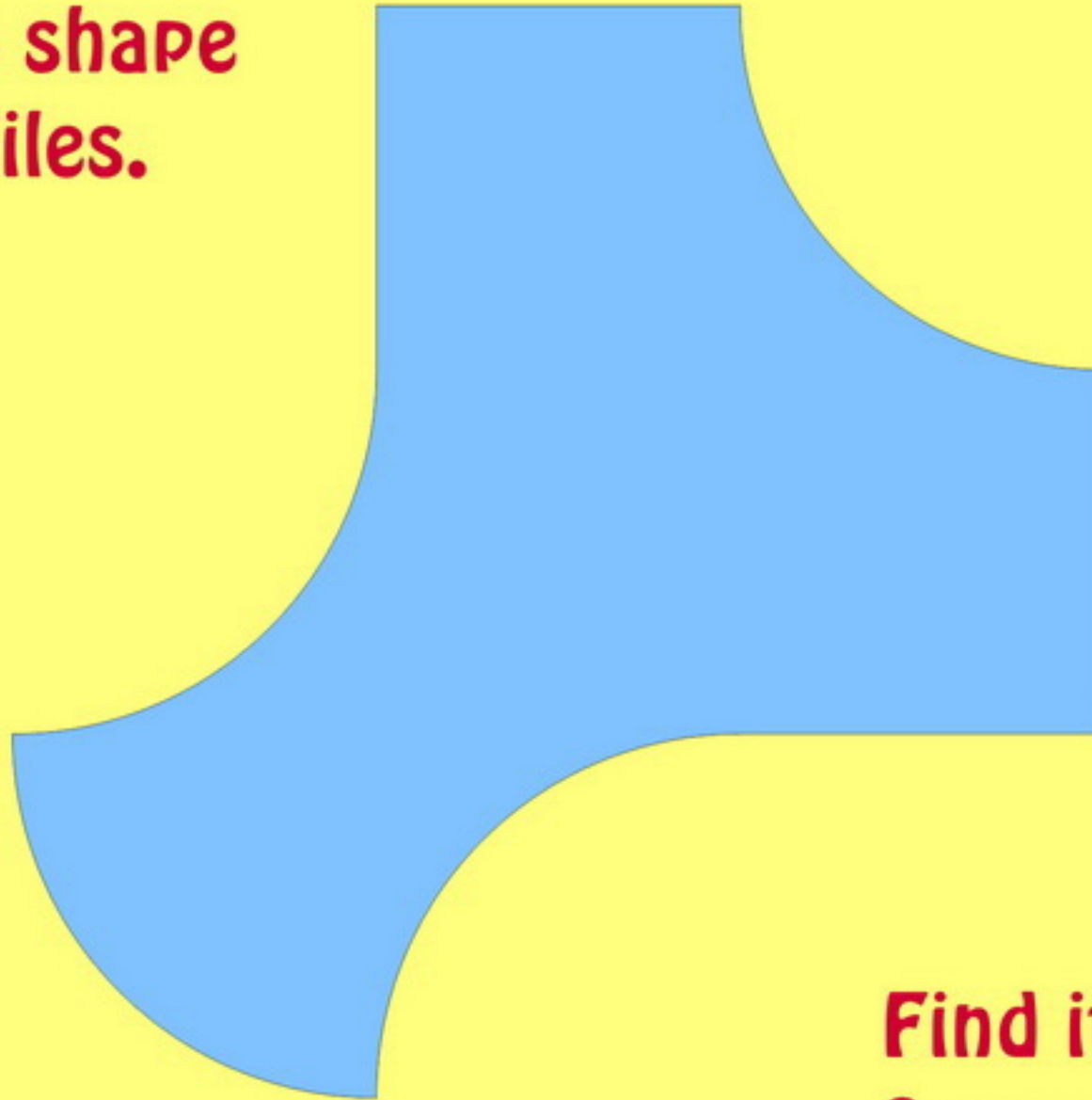
TWO WAYS



Is there a third way?

TWO WAYS

**Make this shape
with TakTiles.**



**Find its area in
2 ways. Record.**

TAKTILE TEASER

The eight TakTiles will fit inside your frame. How?

Calculate the total area of the TakTiles in 2 ways.

MORE?

MORE?

Go to the Investigation Guide



Find your world of alternatives
to text-based learning at:

www.mathematicscentre.com



Core Curriculum

In what ways have we been working like a mathematician?



Interest in learning

What features of:

- the activities
 - the environment
- make learning more likely?



Our Objective

happy, healthy, cheerful
productive, inspiring classrooms



in which students
are learning to
work like a
mathematician

