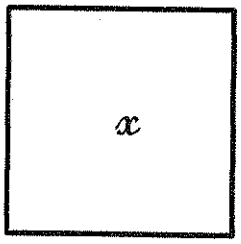
Sheet B1

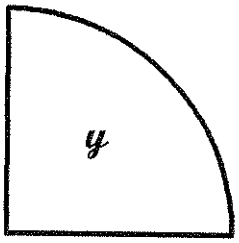
Simple TakTiles

Here are the shapes of five of the set of eight TakTiles that you will be using throughout this work.

Notice that they are all made up of the two *basic shapes* the **square** and the **quadrant**.

Work out their areas in terms of x and y.





NOTE: Keep this sheet for reference.

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Sheet B2 Finding Areas in Two Ways

Shape 1

Its area can be worked out in two ways.

***Method 1*: Using geometry**

Look at the squares and quadrants needed to cover Shape 1. Now subtract the extra quadrants.

$6x + y$, then take away three y,

or $(6x + y) - 3y = 6x - 2y$.

***Method 2*: Using algebra**

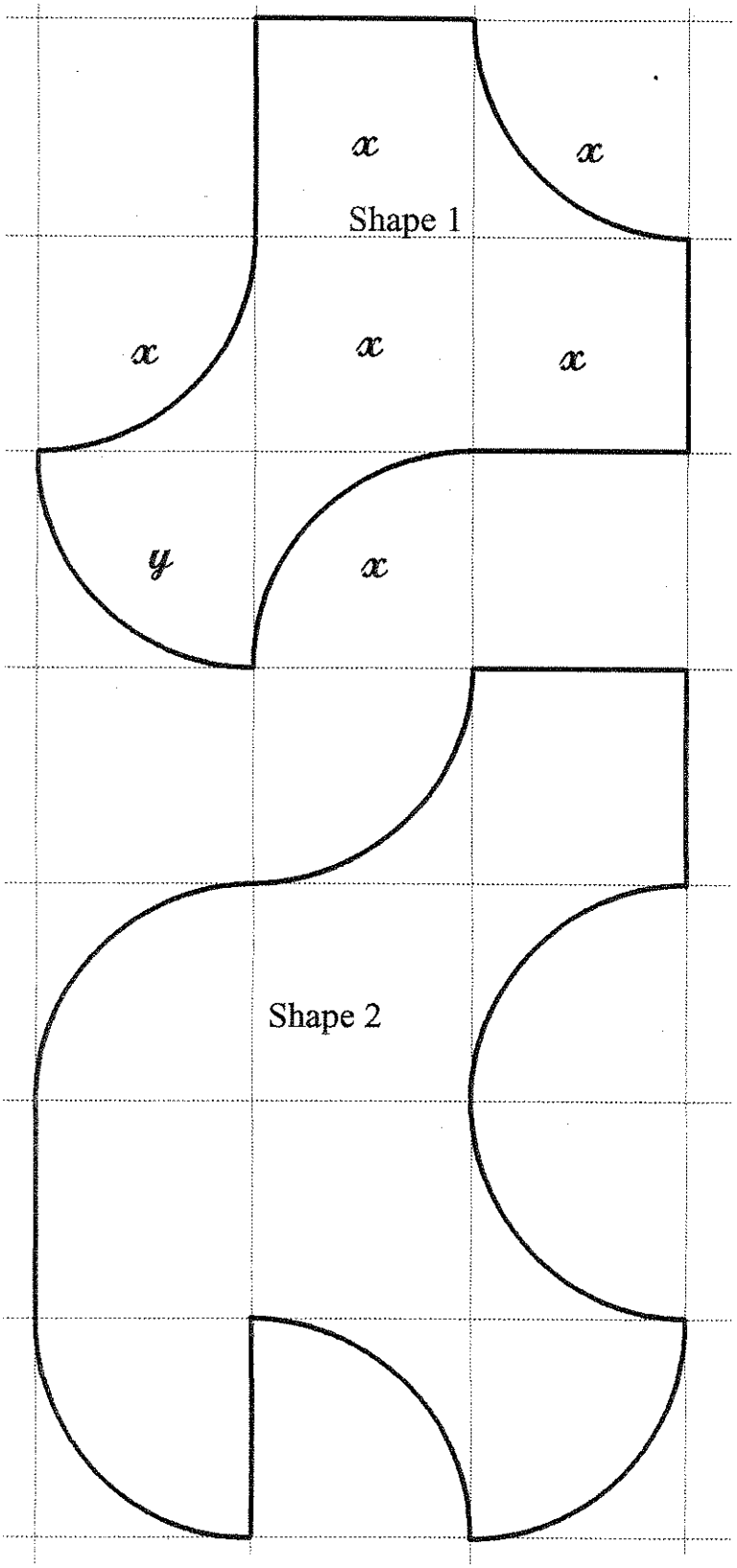
Make Shape 1 with tile C and tile E.
Draw a line showing where they join.

So its area = $c + e$

$= (4x - 2y) + (2x)$

$= 6x - 2y$.

And both methods give the same answer!



Shape 2

Find its area using the same two methods.

***Method 1*: Using geometry**

Area =

=

***Method 2*: Using algebra**

Make Shape 2 with three of the tiles.
Draw lines to show where they join.

Area = + +

=

=

Did you get the same answer each time?

Did you find it easier by ***using algebra***?

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Sheet B3 Larger Areas

Use *Method 1* to find the area of Shape 3.

Area =

=

Now use *Method 2*.

Make Shape 3 with the five tiles.
Draw lines showing where they join.

Their areas are: a =

b =

c =

d =

e =

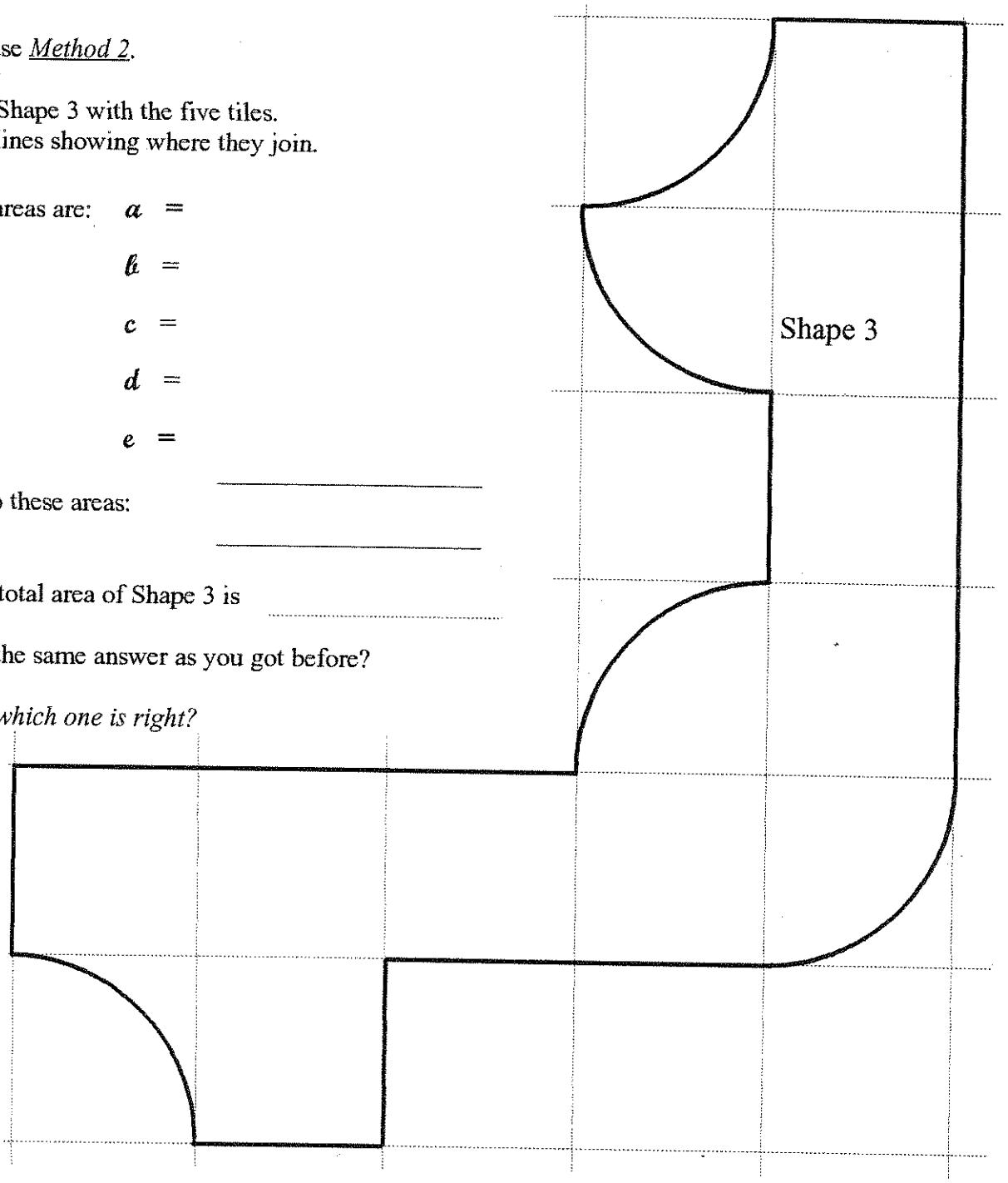
Add up these areas: _____

_____

So the total area of Shape 3 is .....

Is this the same answer as you got before?

If not, *which one is right?*



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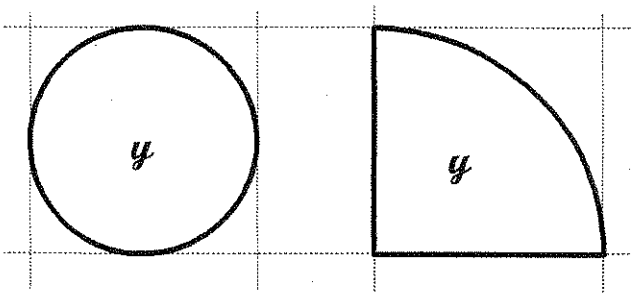
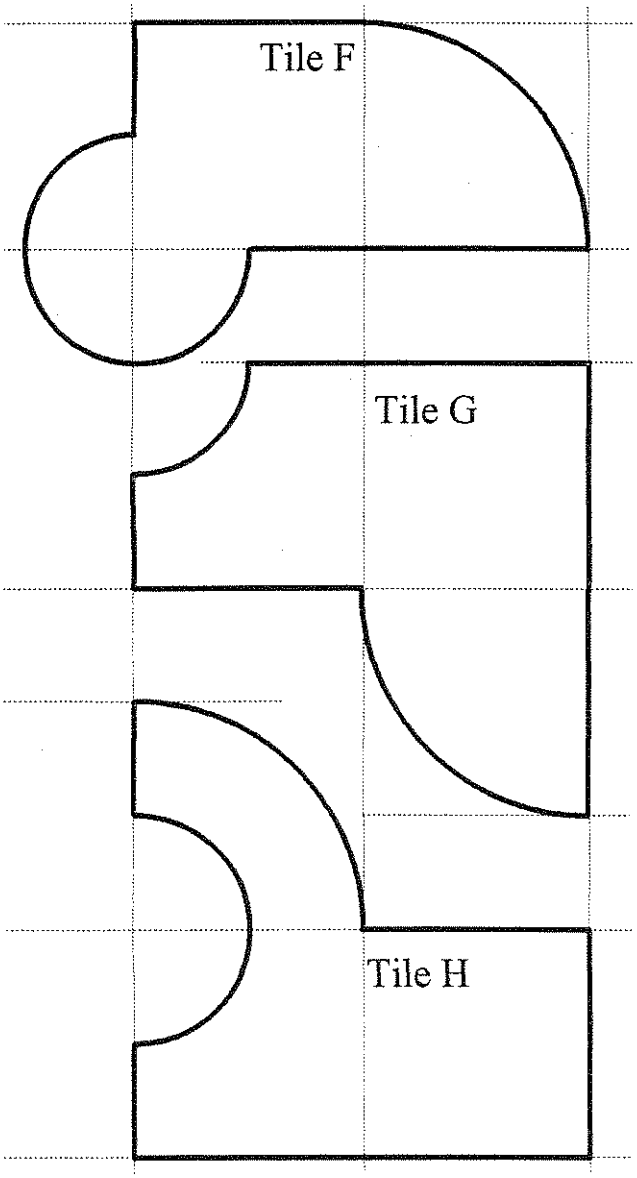
Sheet B4 The Small Circle

The area of this circle and the area of the quadrant are actually equal to each other.



(If you are curious about this, take as look at Sheet C3.)

Accepting that this is true,
work out the areas of tiles F, G and H in terms of x and y.



You may find it helpful to draw in pencil lines.

Area f =

=

Area g =

=

Area h =

=

NOTE: Keep this sheet for reference.

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Sheet B5

More TakTile Shapes

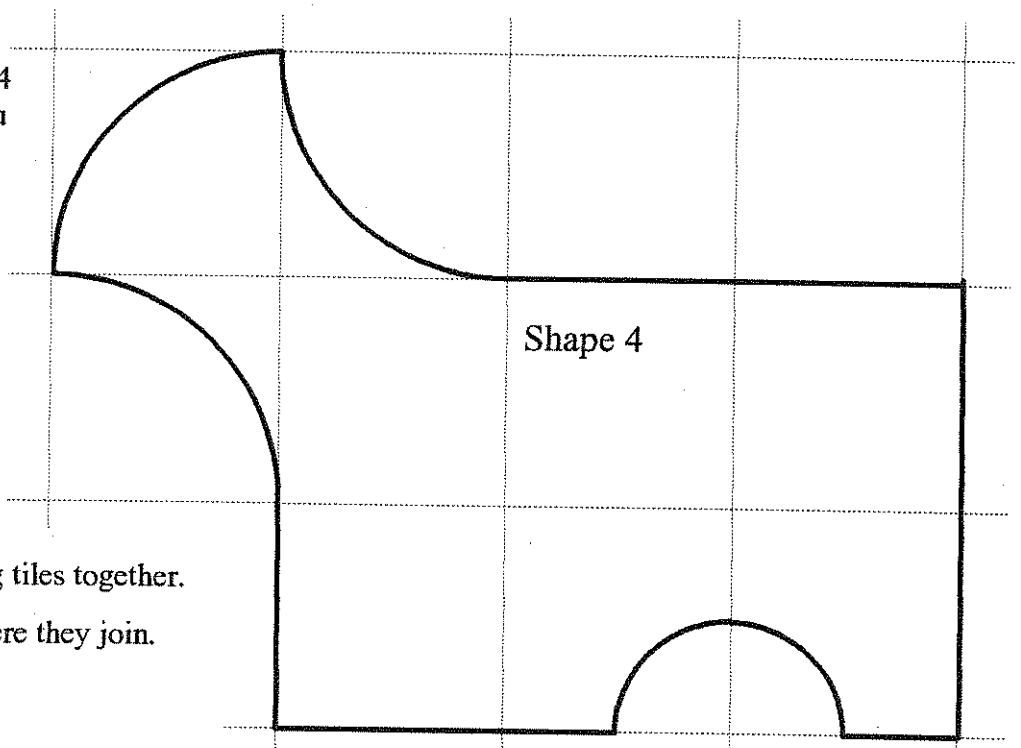
Find the area of Shape 4 by the two methods you used before.

***Method 1*: Geometry**

Write down the area in terms of x and y.

Area =

=



***Method 2*: Algebra**

Make Shape 4 by fitting tiles together.

Draw lines to show where they join.

Area = + +

=

=

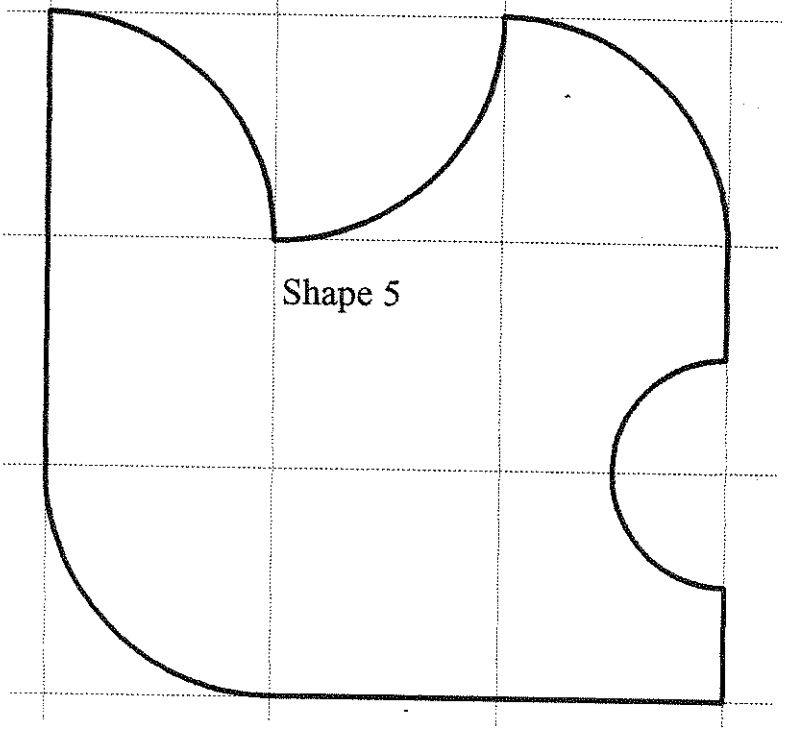
Did you get the same answer each time?

Now do exactly the same with Shape 5.

***Method 1*: Geometry**

Area =

=



***Method 2*: Algebra**

Area =

=

=

Did you get the same answer each time?

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Sheet B6 Half-Scale Shapes

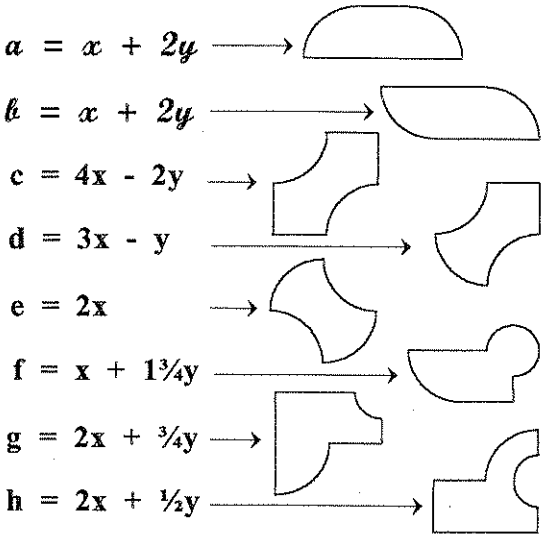
The areas of the TakTiles are shown on the right.

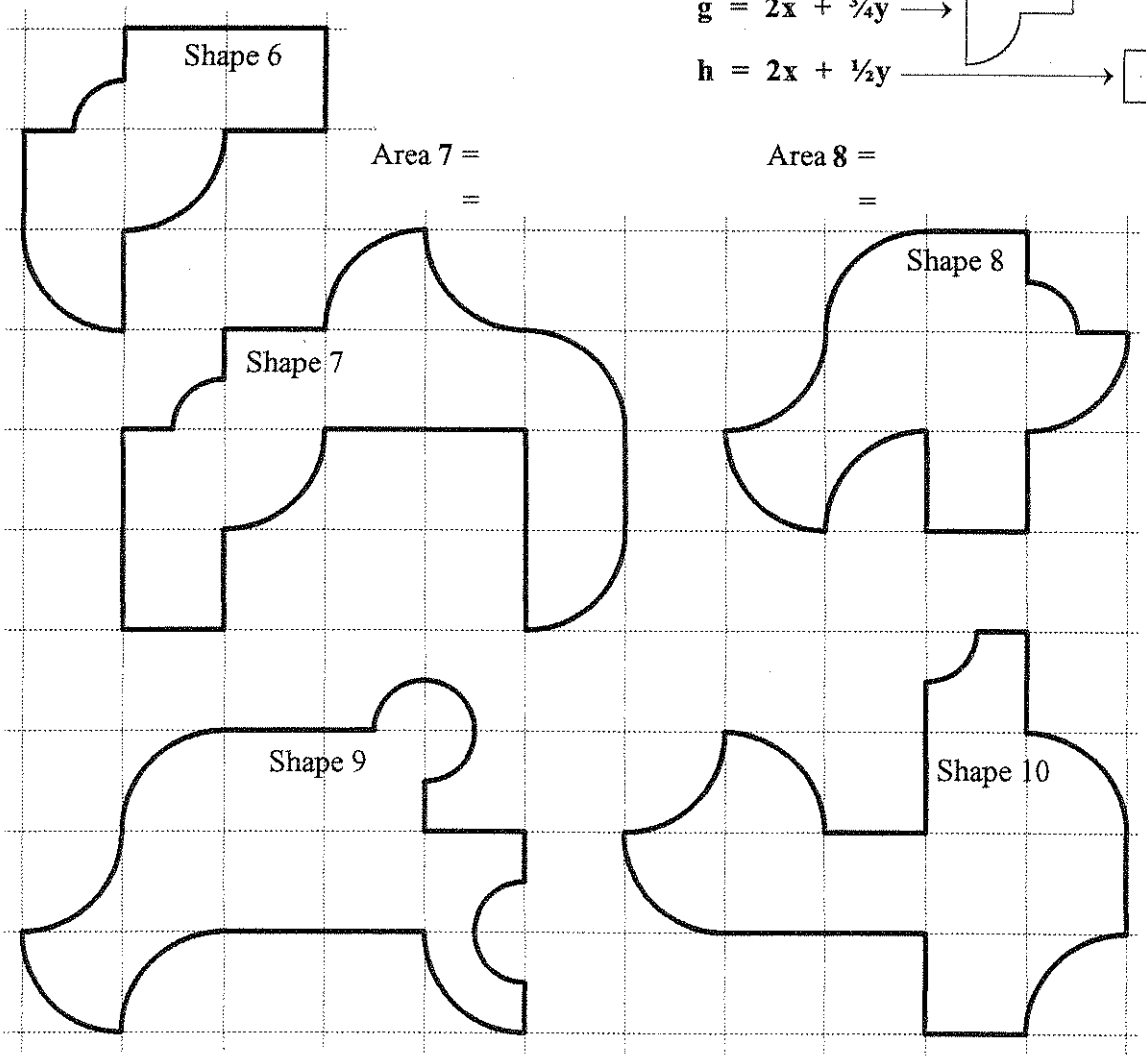
Make the shapes drawn below by fitting tiles together. Draw lines to show how you did it.

Then work out the area of each shape in terms of x and y.

Do it this way:

Area 6 = ℓ + h =





Area 7 =
=

Area 8 =
=

Area 9 =

Area 10 =

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ALGEBRA THROUGH GEOMETRY

NAME(S): .....CLASS: .....

Each square is the same size as the shape named ***x***.
The sheet can help you work out the area of each shape.
You might trace the shapes and then remove them to work out the area.