Year 6: Understanding Shape

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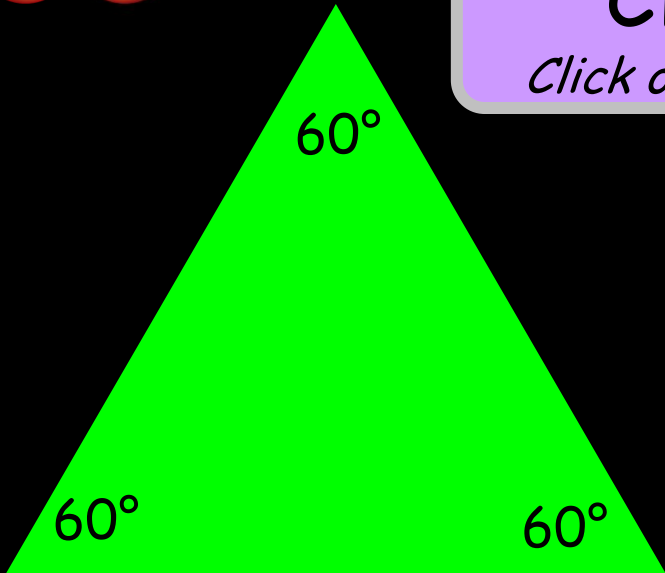
CLICK!

Action Button
(click when it flashes)

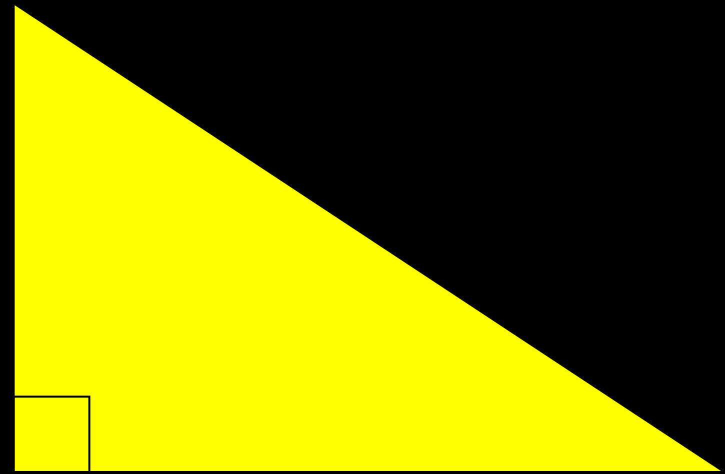
Contents - *Please click the Go Button*

Classifying Triangles

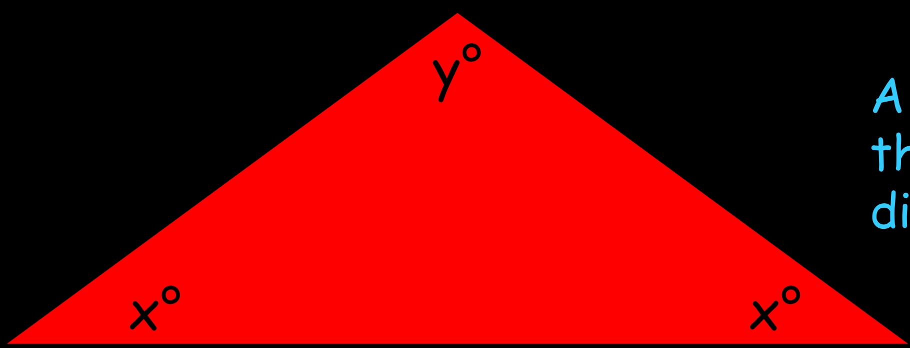
Click on the triangle to reveal its properties



An equilateral triangle. All sides are the same length. All angles are the same (60°).

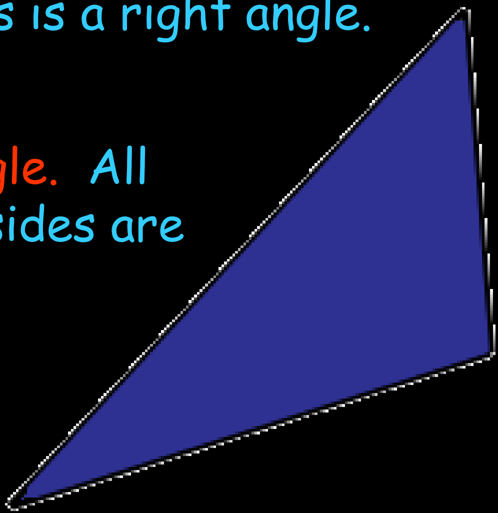


A right angled triangle. One of its corners is a right angle.



A isosceles triangle. Two angles are the same, and two sides are the same length.

A scalene triangle. All the angles and sides are different.



Identifying a Shape

Choose a shape.

Click yes or no to follow the flowchart

Clear

Does the shape have 3 sides?

Yes

Has the triangle got a right angle?

Yes

Right angled triangle

No

Are all sides the same length?

Yes

Equilateral Triangle

No

Isosceles Triangle

No

Does the shape have 4 sides?

Yes

Does the shape have 4 right angles?

Yes

Rectangle

No

Parallelogram

No

Has the shape got 5 sides?

Yes

Pentagon

No

Hexagon

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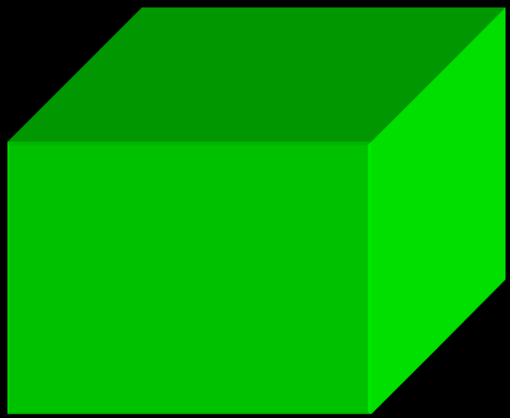
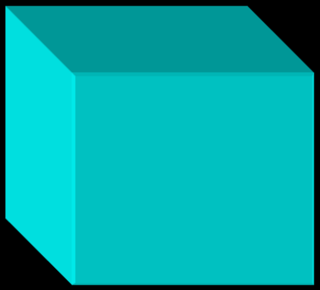
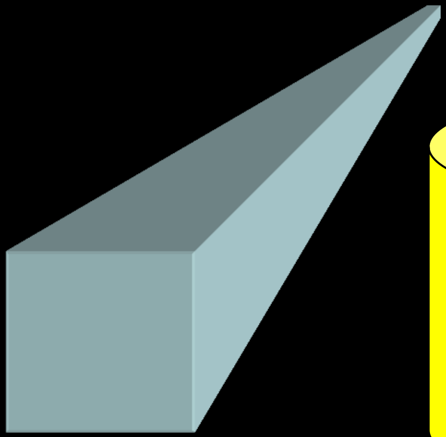
3D Shapes



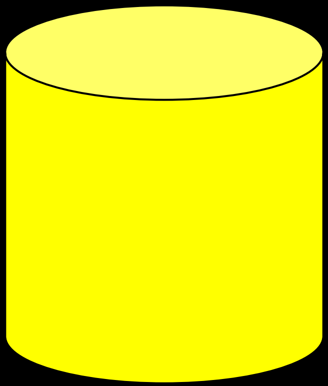
A cuboid.



A cube

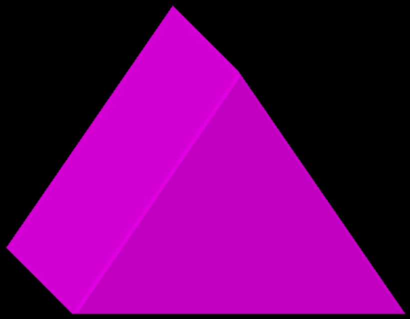


Square based pyramid

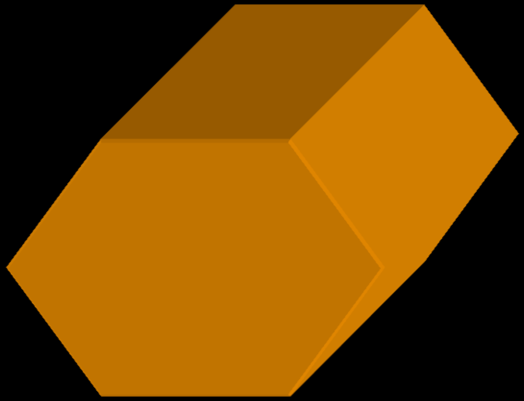


A cylinder

3D shapes are difficult to see on a 2D screen, but we'll have a go! Click on a shape to reveal its name.



A triangular prism



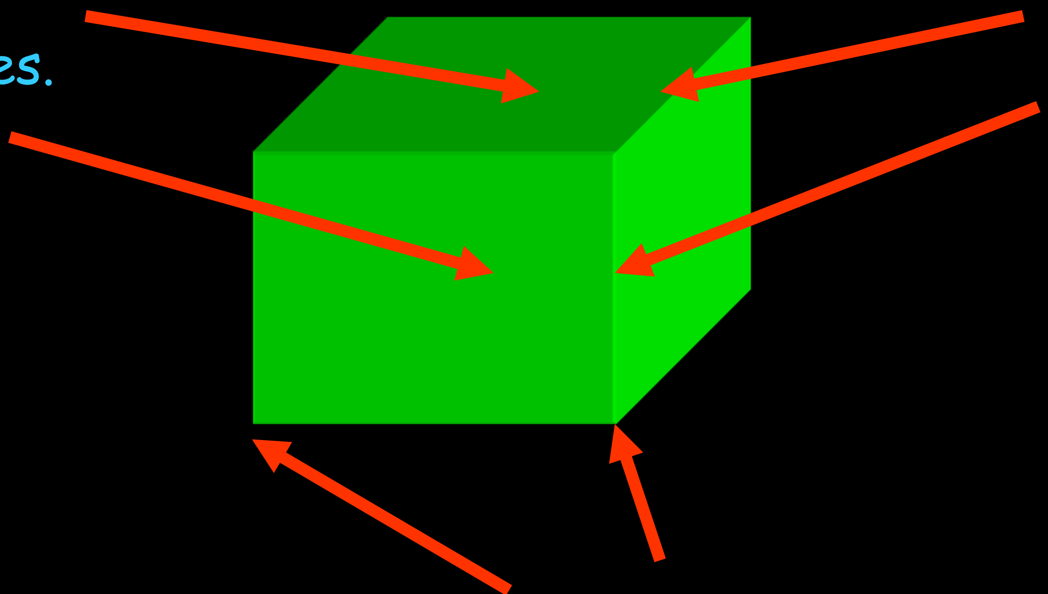
A hexagonal prism.

3D Shapes:

Faces, edges and vertices.

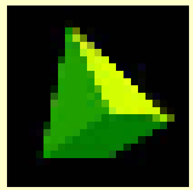
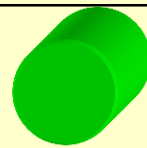
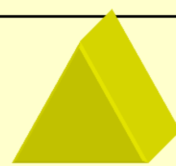
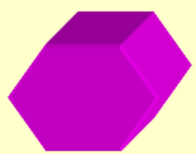
Faces. This cube will have 6 faces.

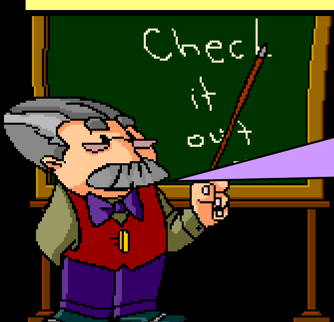
Edges. This is where faces meet. This cube has 12 edges.



Vertices. These are corners of a 3D shape. This cube has 8 vertices.

CLICK!

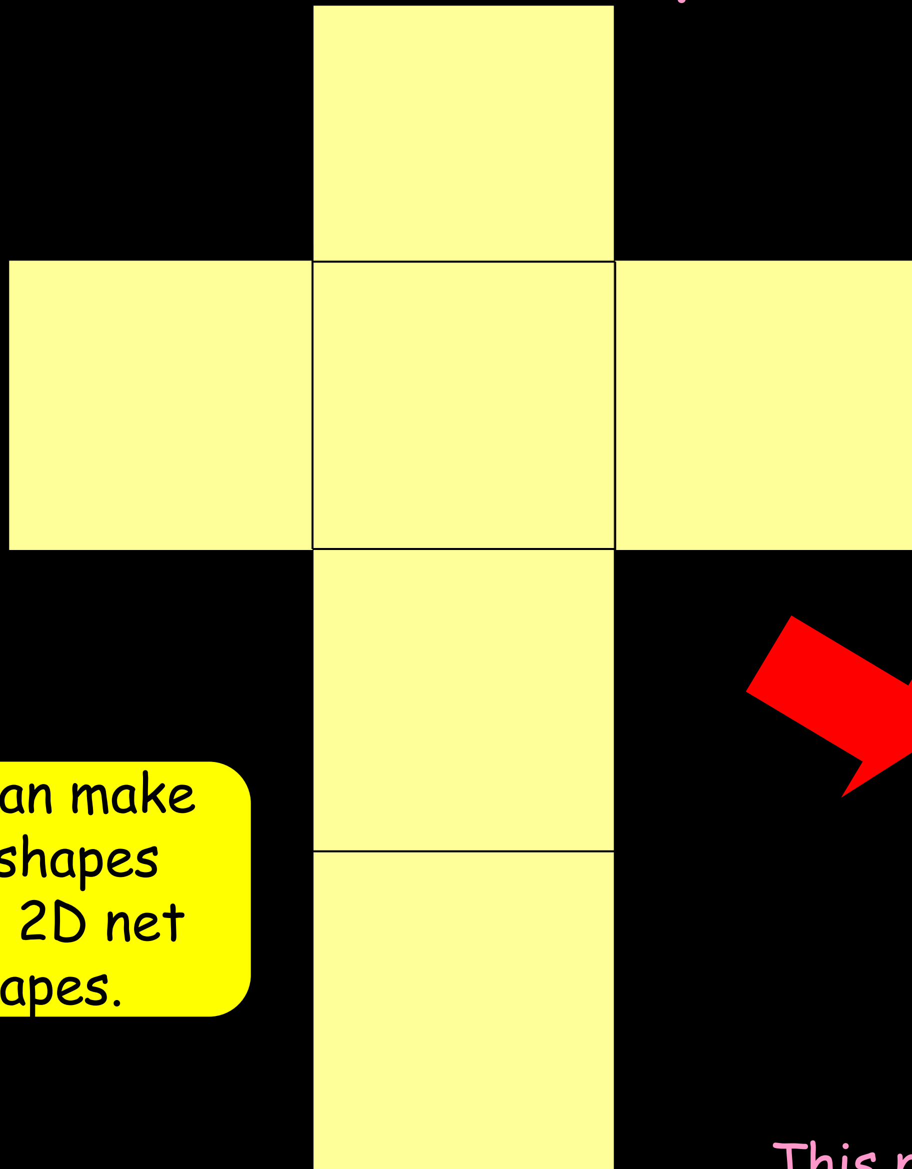
Name of Shape	Image	No. of faces	No. of edges	No. of vertices
Cuboid		?	?	?
Square based Pyramid		?	?	?
Cylinder		?	?	?
Triangular Prism		?	?	?
Hexagonal Prism		?	?	?

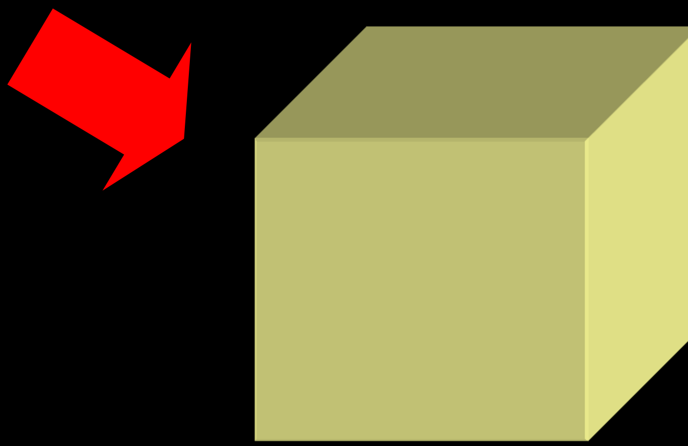


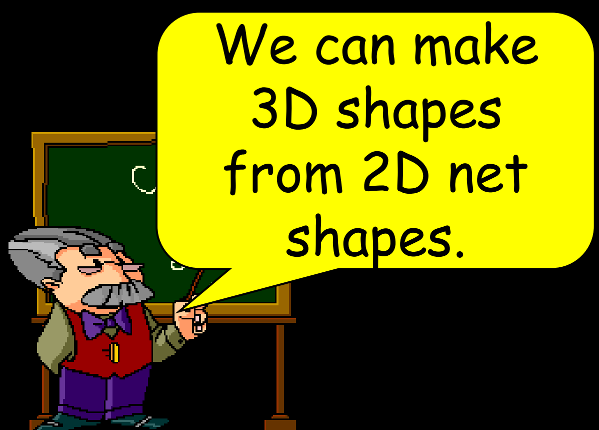
Can you fill in the missing parts of this table?

Click on the ? to reveal the answer…

Net Shapes

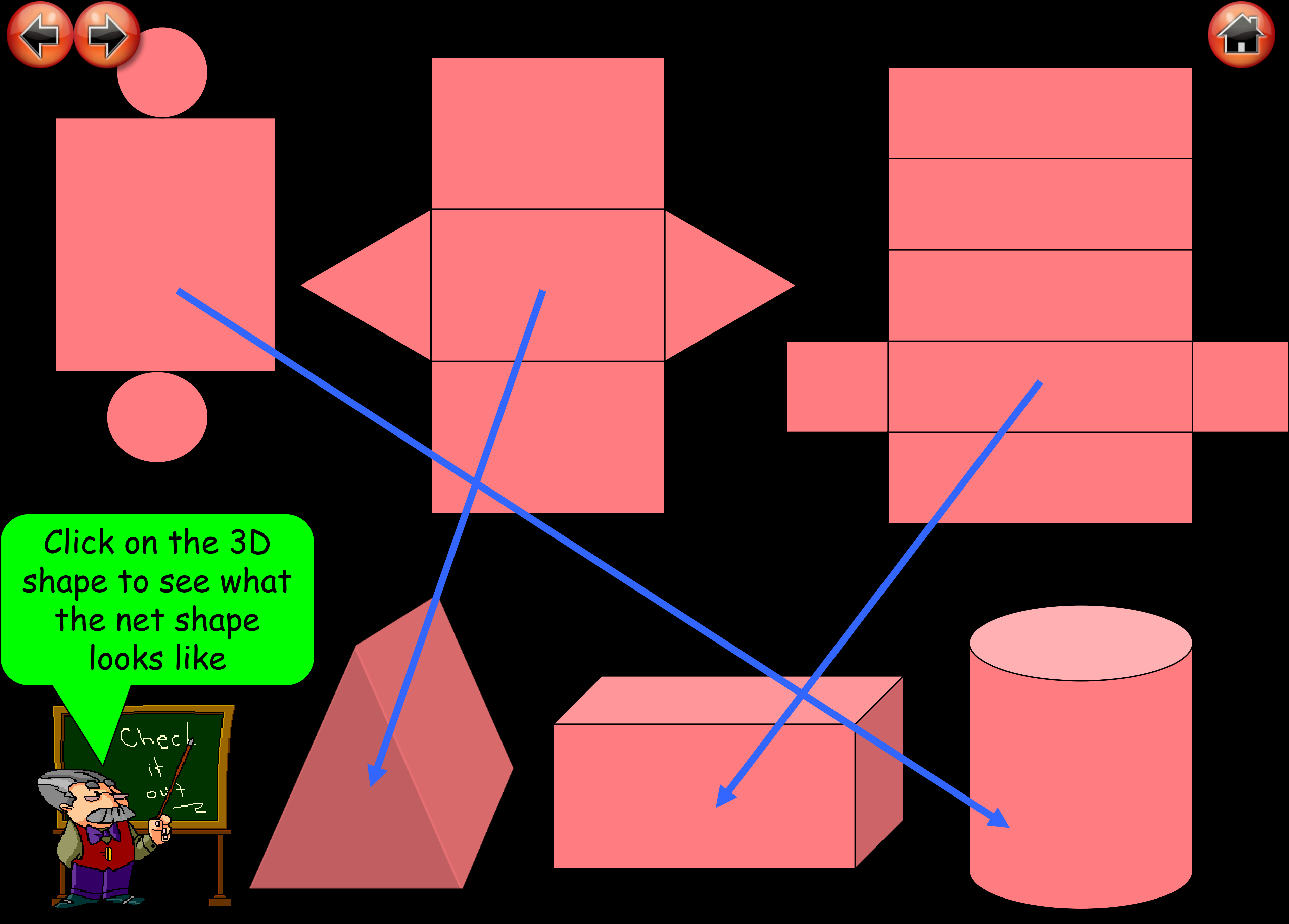






This net shape will make a cube.

CLICK!



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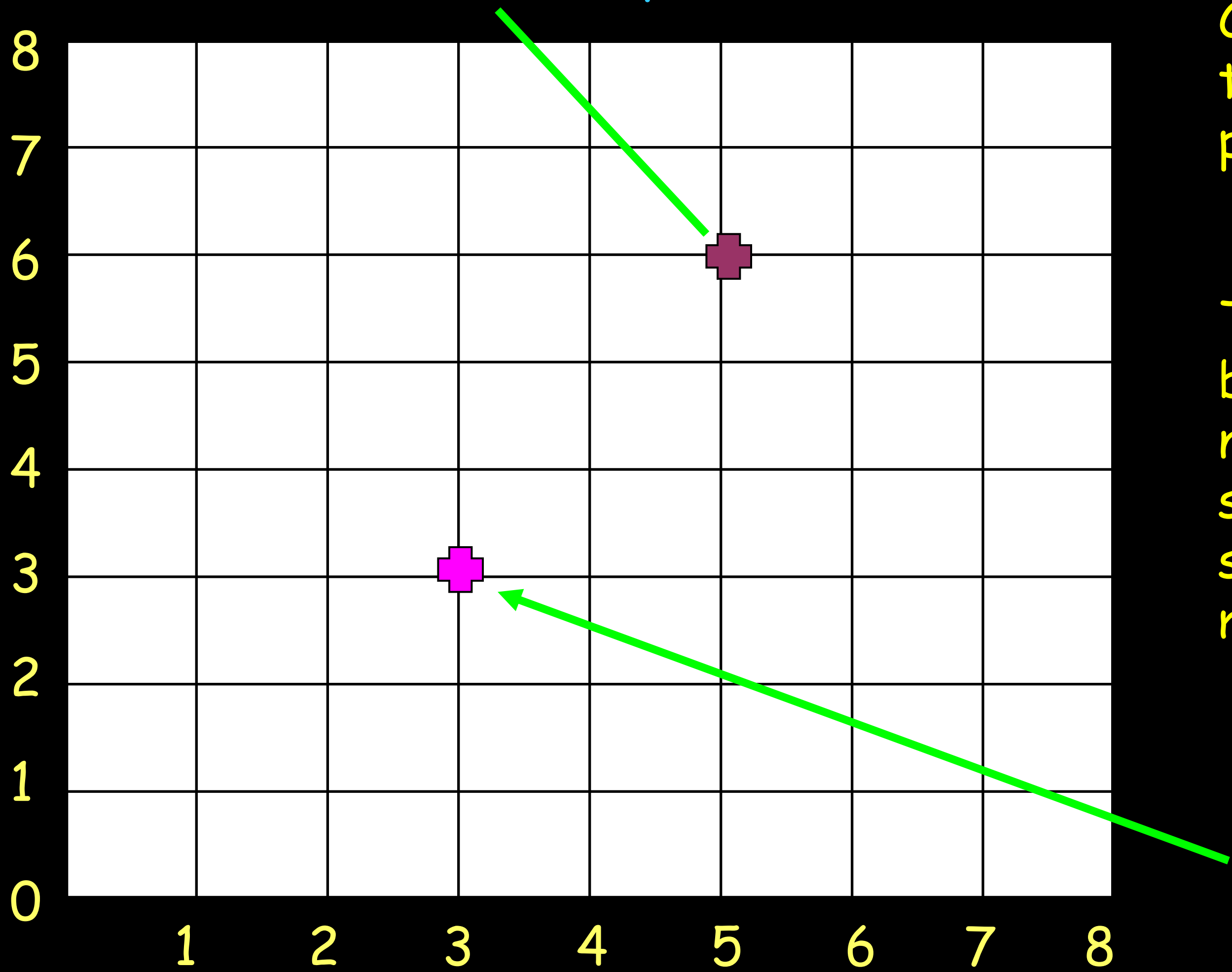
Using Co-ordinates

The co-ordinates of this point are (5,6)



Co-ordinates are used to identify where a point can be found.

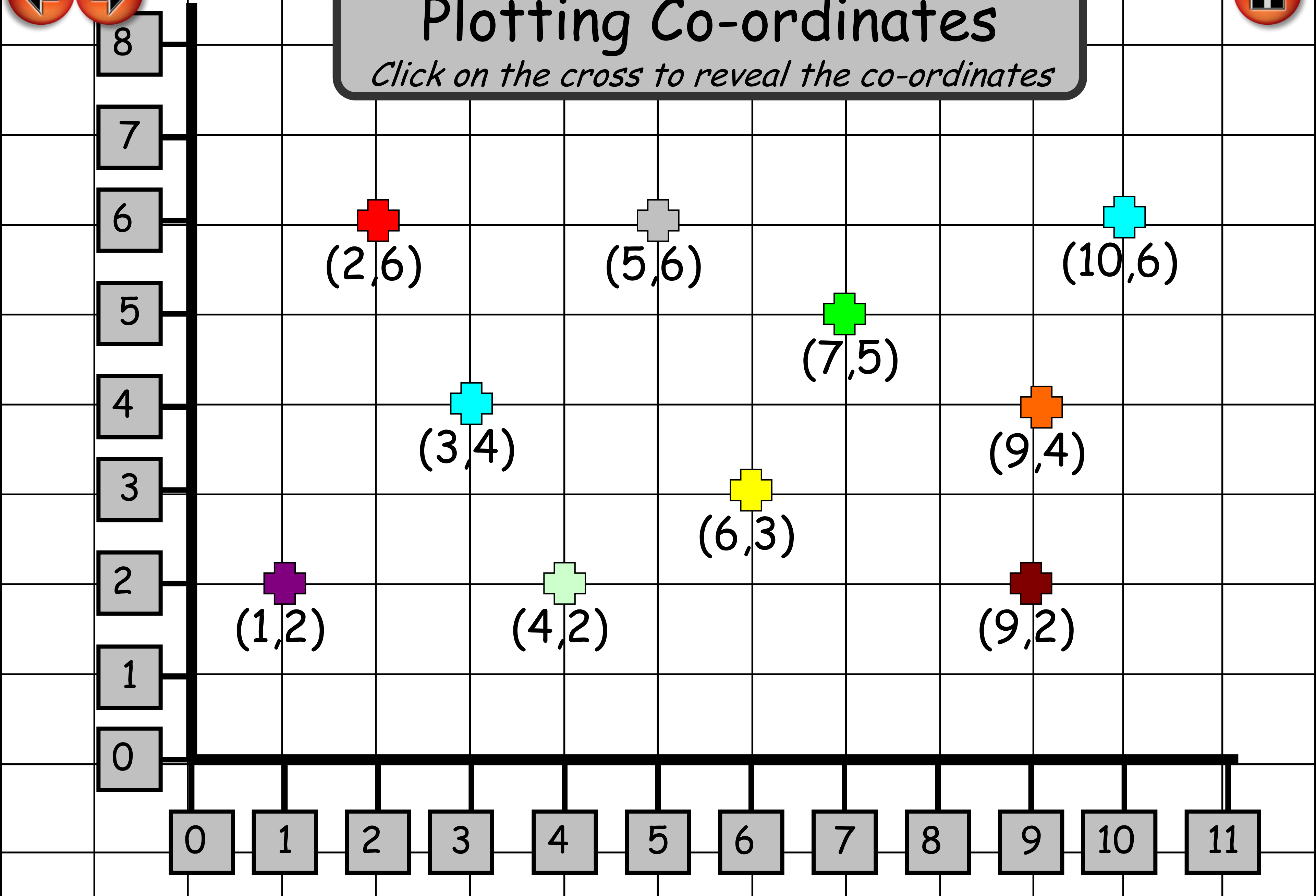
They are written in brackets. The first number is how many squares along, the second number is how many squares up!

The co-ordinates of this cross are (3,3)

CLICK!

Plotting Co-ordinates

Click on the cross to reveal the co-ordinates



What are the co-ordinates of each corner of these shapes?

Click on the co-ordinates to place them

(3,4)

(1,7)

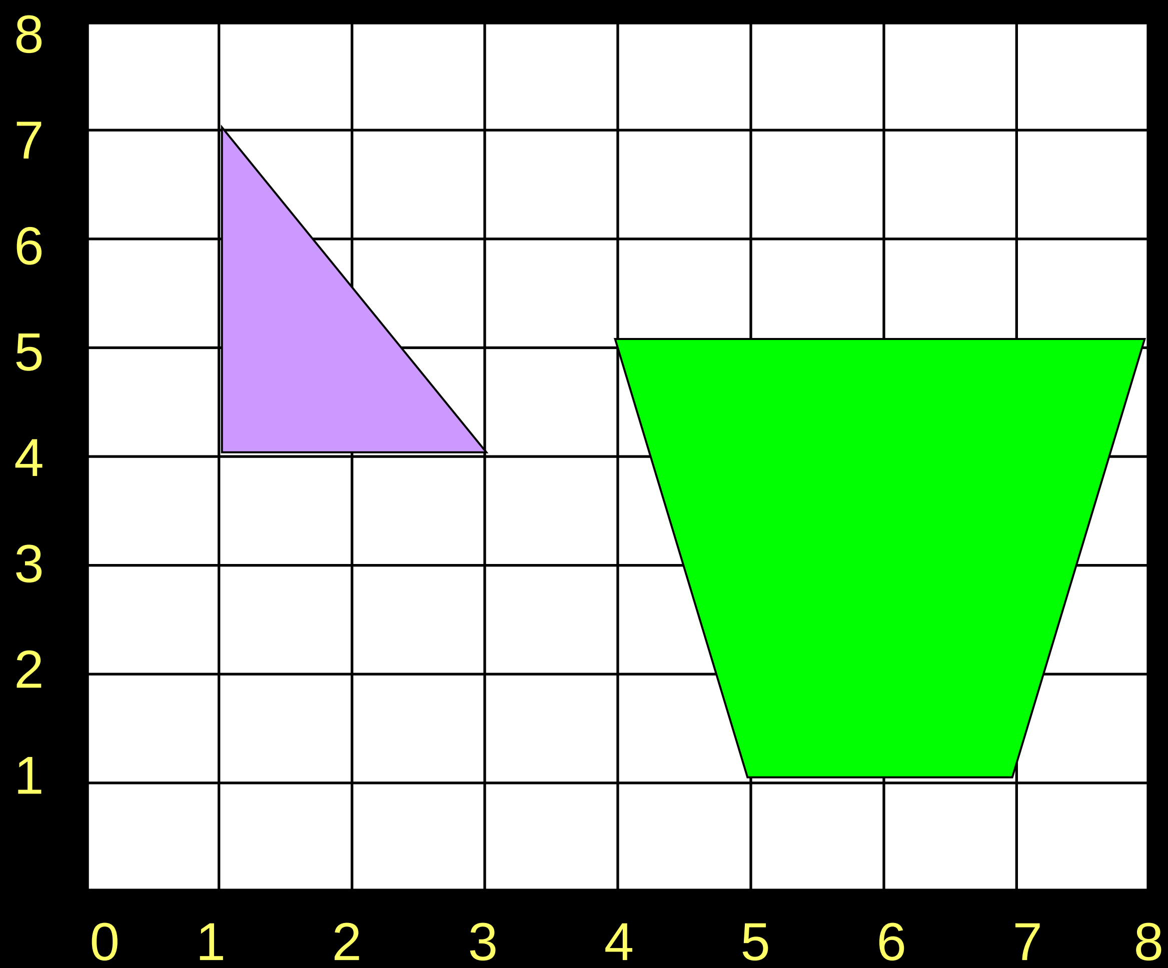
(8,5)

(1,4)

(4,5)

(7,1)

(5,1)



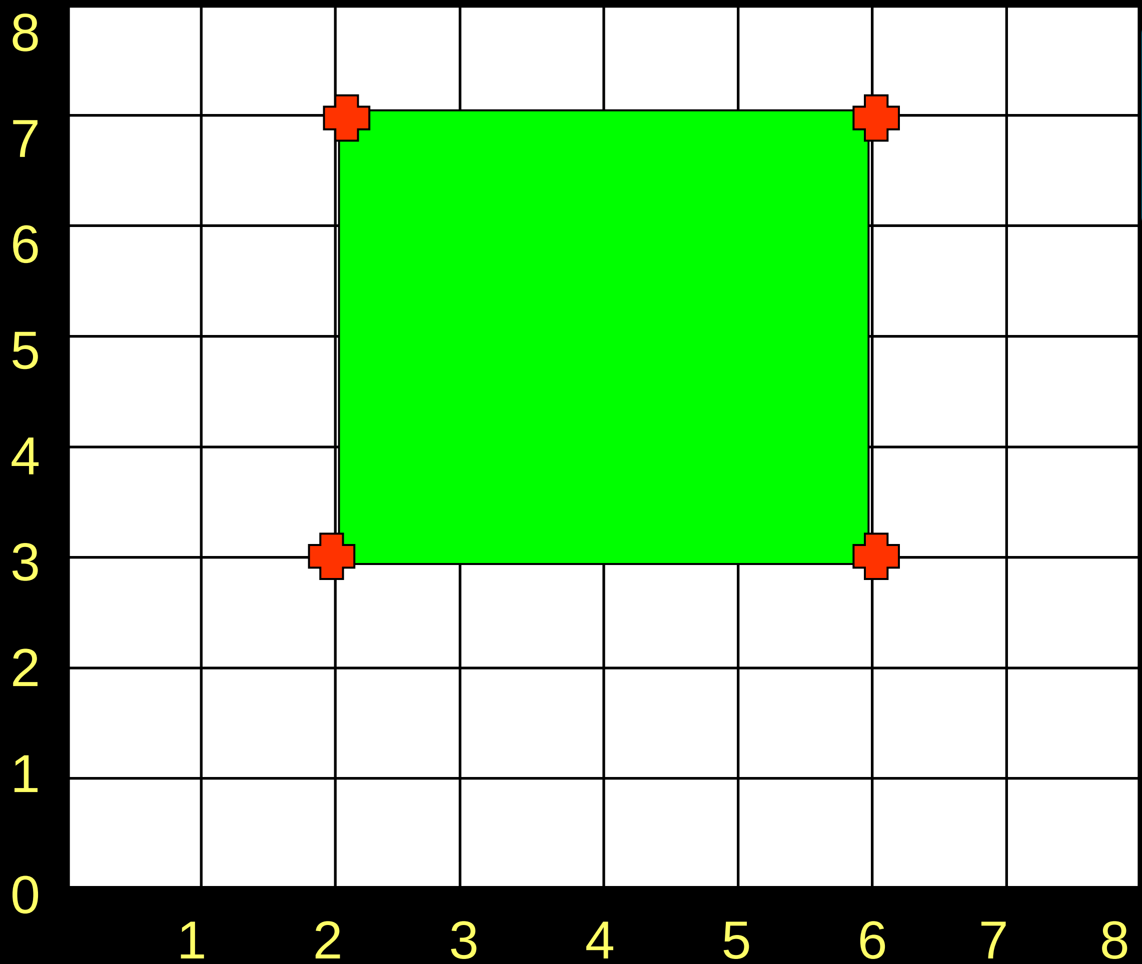
(2,3)

(6,3)

(2,7)

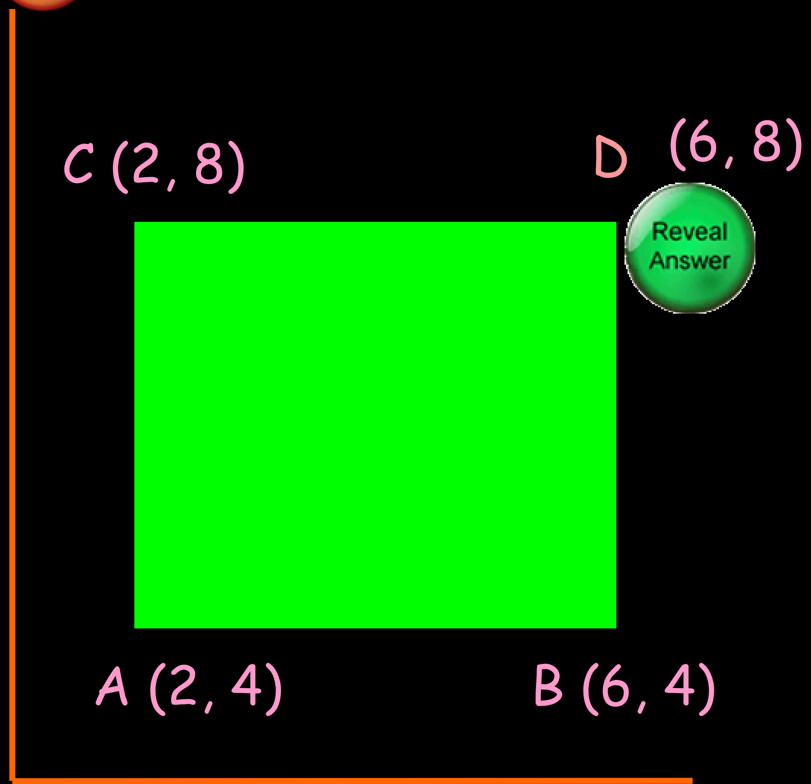
(6,7)

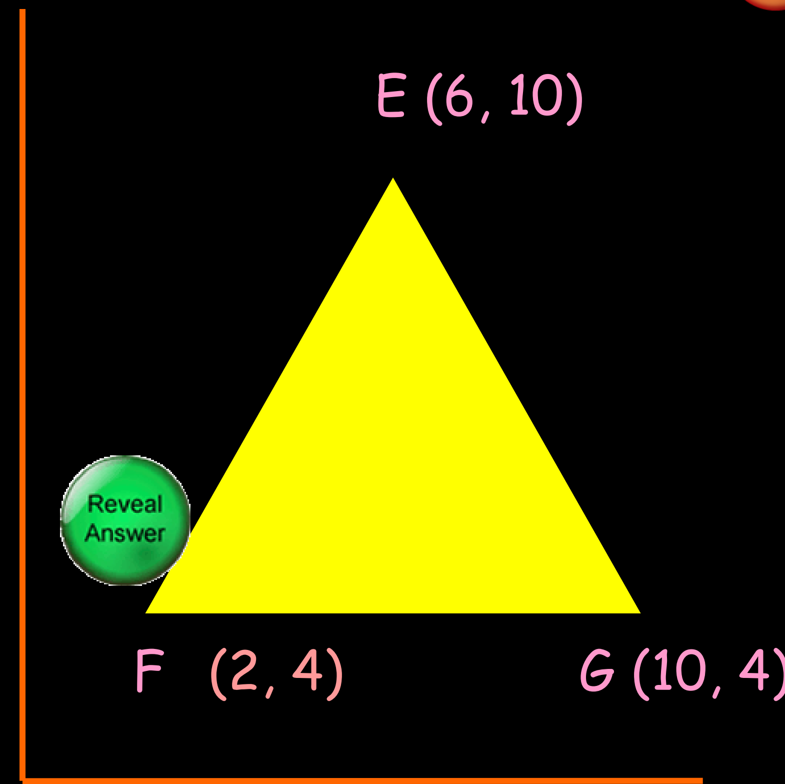
Draw Shape



Plot these points on the graph paper: Click a co-ordinate to plot the corner.

What shape does it make?





This shape is a oblong.
What are the co-ordinates of D?

This is an equilateral triangle.
What are the co-ordinates of F?

CLICK!

Co-ordinates in all 4 quadrants

II

This is the second quadrant. Typical co-ordinates might be (-5,6)

X

5 squares backwards, 6 squares up

I

This is the first quadrant. Typical co-ordinates might be (5,6)

X

5 squares across, 6 squares up

III

This is the third quadrant. Typical co-ordinates might be (-5,-6)

X

5 squares backwards, 6 squares down

IV

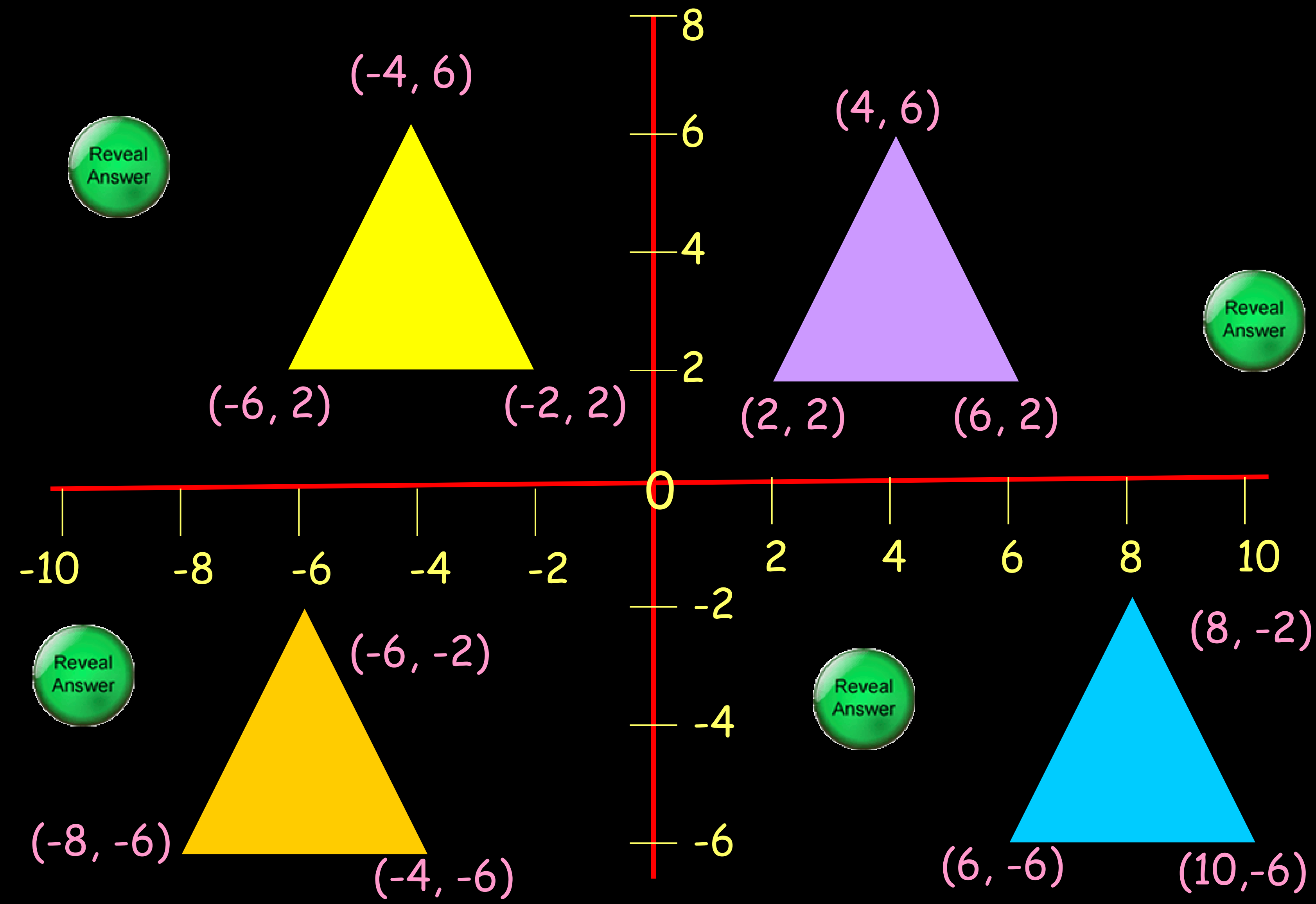
This is the fourth quadrant. Typical co-ordinates might be (5,-6)

X

5 squares across, -6 squares down

CLICK!

Can you work out the co-ordinates of each corner of the 4 triangles?

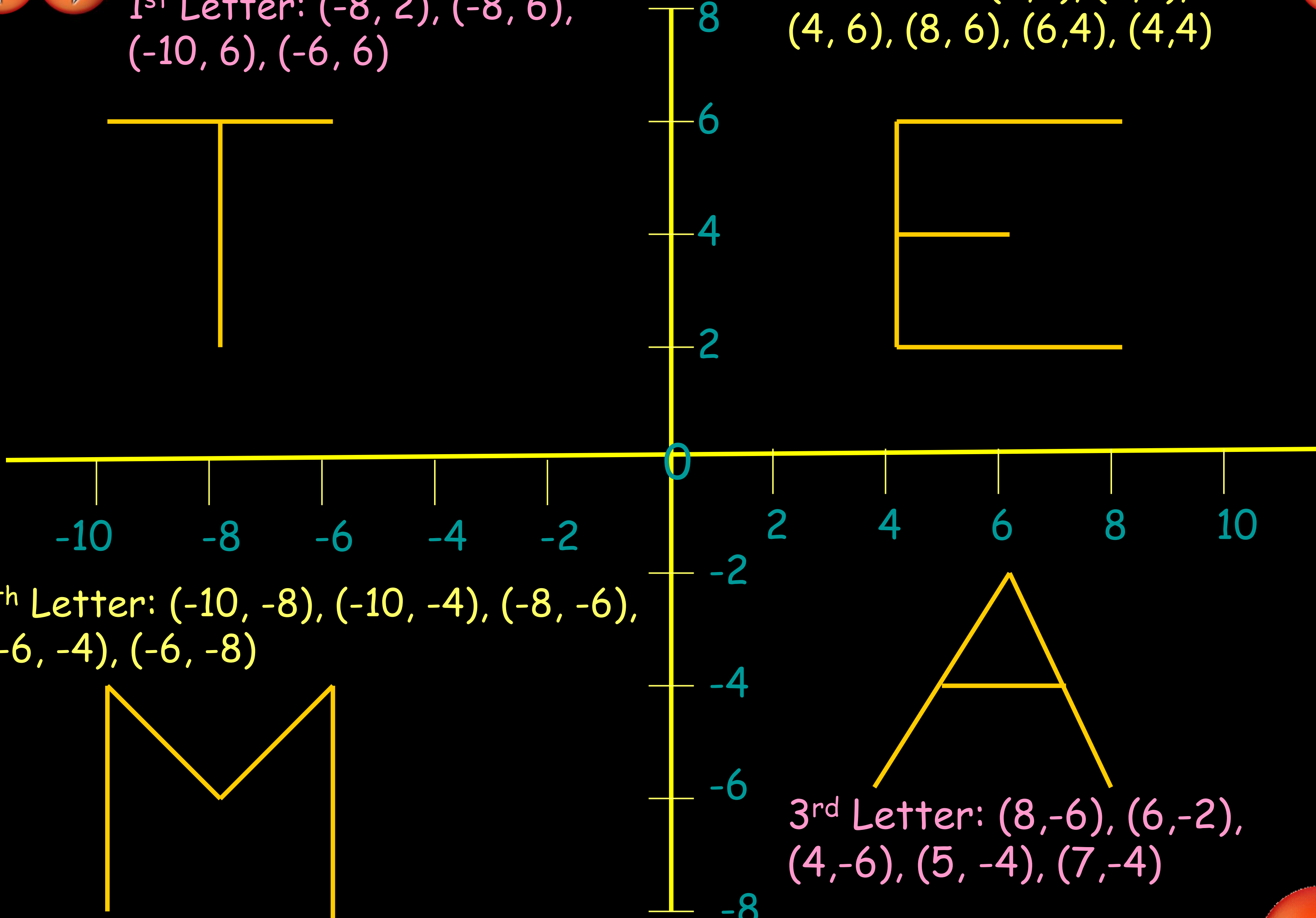


1st Letter: (-8, 2), (-8, 6), (-10, 6), (-6, 6)

2nd Letter: (8,2), (4,2), (4, 6), (8, 6), (6,4), (4,4)

3rd Letter: (8,-6), (6,-2), (4,-6), (5, -4), (7,-4)

4th Letter: (-10, -8), (-10, -4), (-8, -6), (-6, -4), (-6, -8)



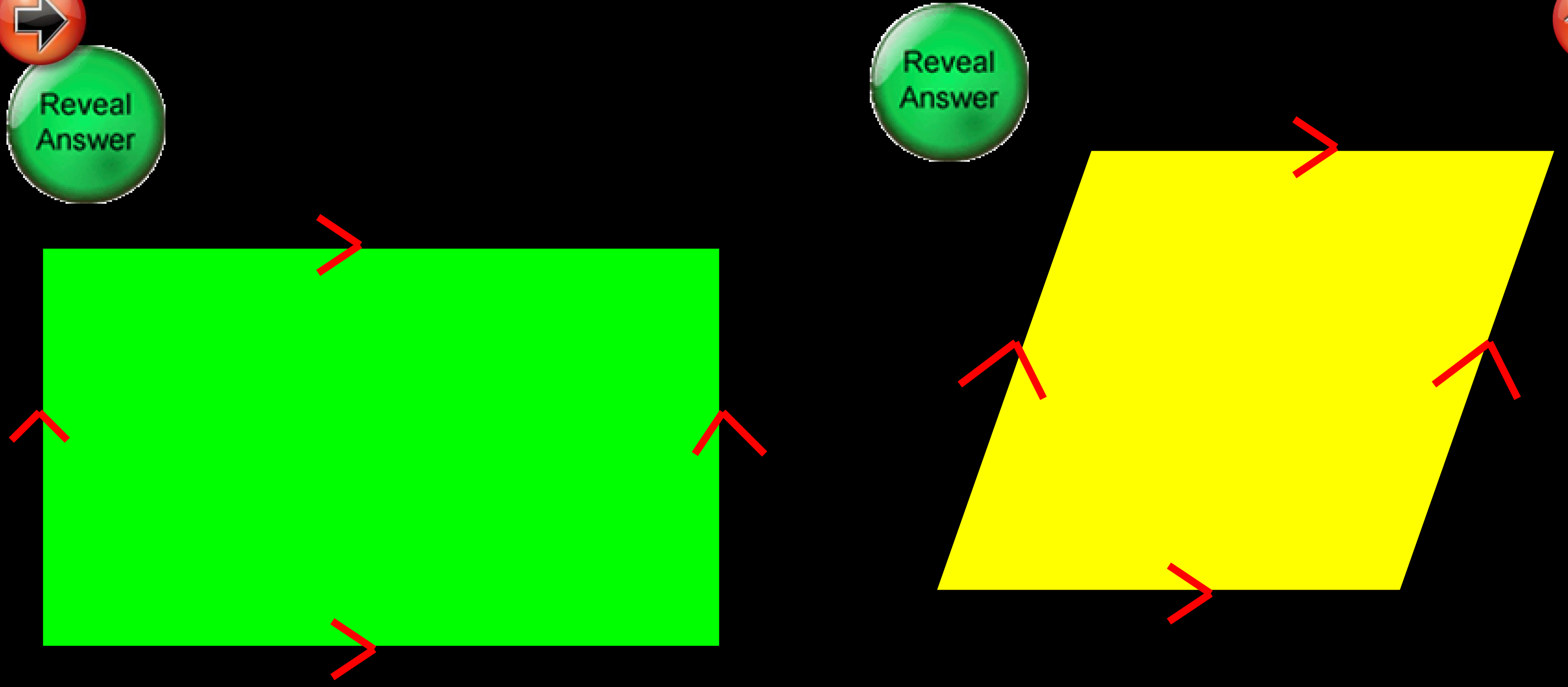
Plot these points and join them (in order) to reveal a 4 letter word.

CLICK!

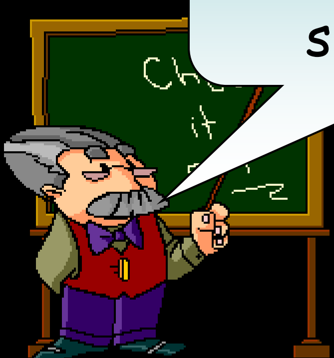
Parallel Lines

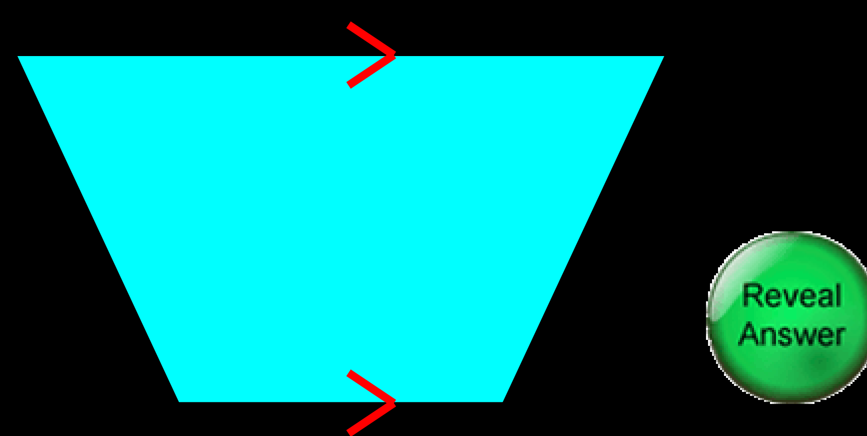
A train needs to run on parallel lines, otherwise it wouldn't be very safe!

Parallel lines are lines that are always the same distance apart, and never meet.

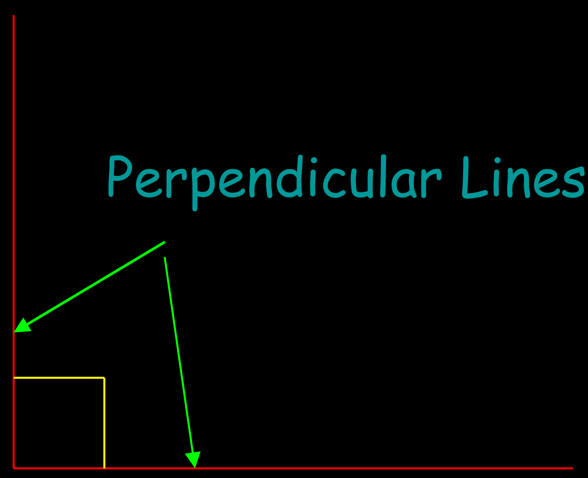


How many parallel lines do these shapes have?





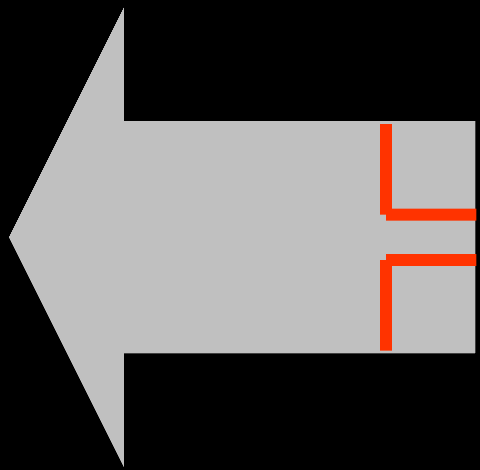
Perpendicular Lines

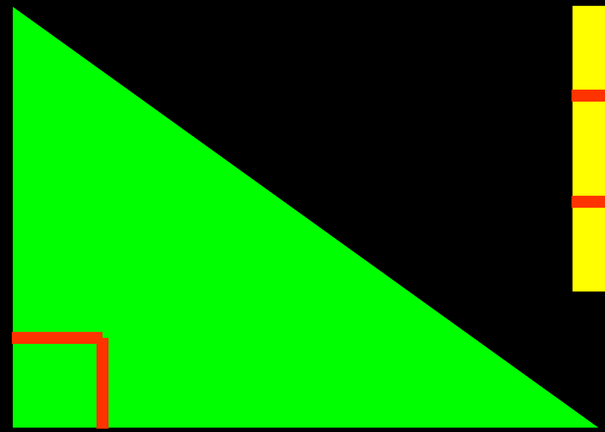


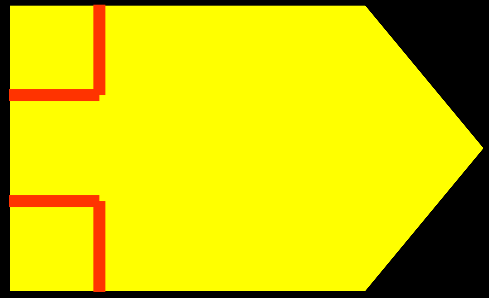
This oblong has 4 perpendicular lines

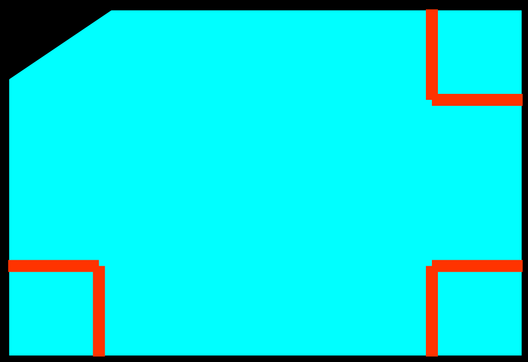
Perpendicular Lines are lines that join at right angles (90°)

CLICK!









How many perpendicular lines can you see on these shapes?

Click each shape to reveal the answers

Symmetry

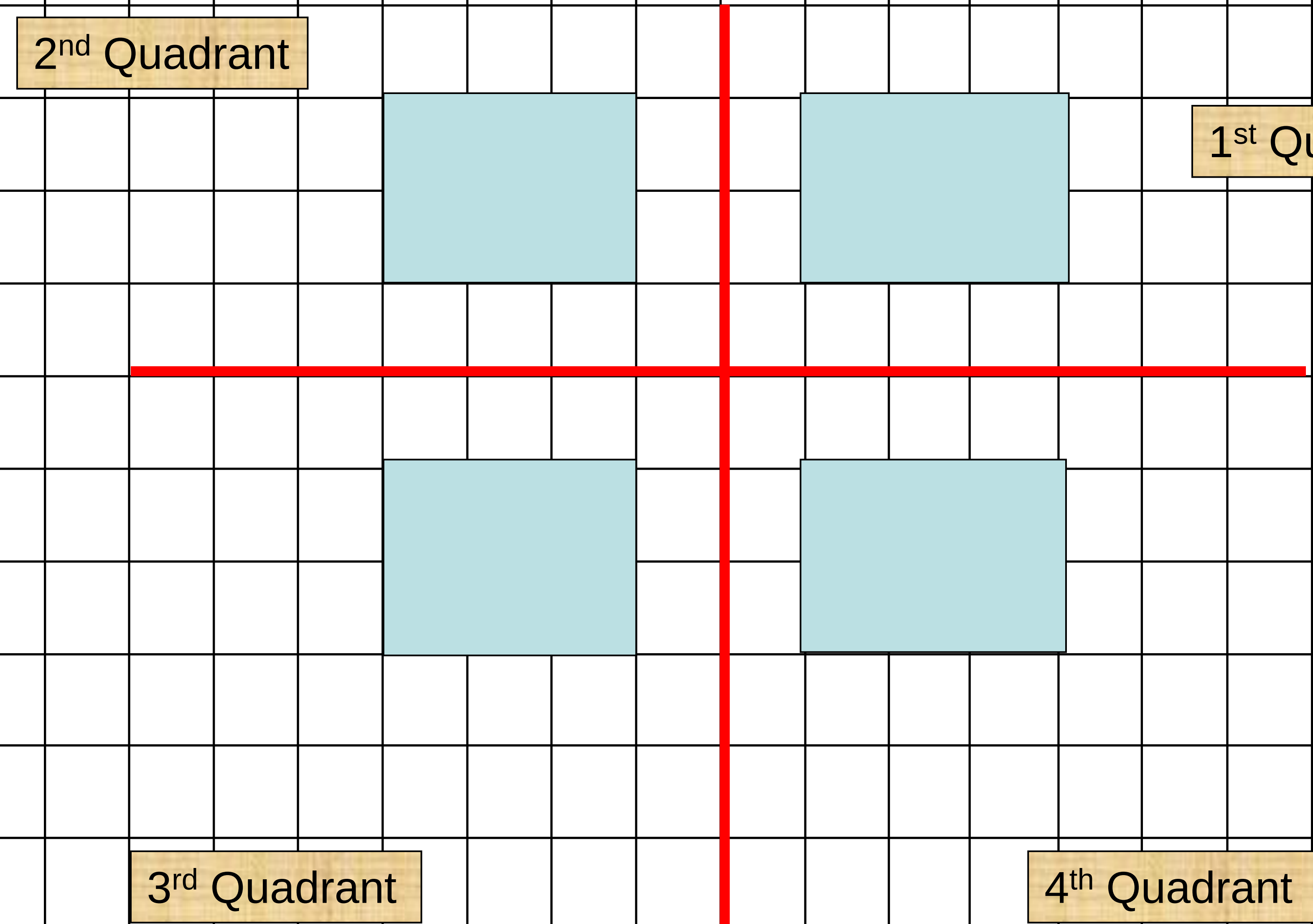
A line of symmetry is where a shape can be divided into two exact equal parts.

A line of symmetry can also be called a mirror line. Either side of the mirror line looks exactly the same.

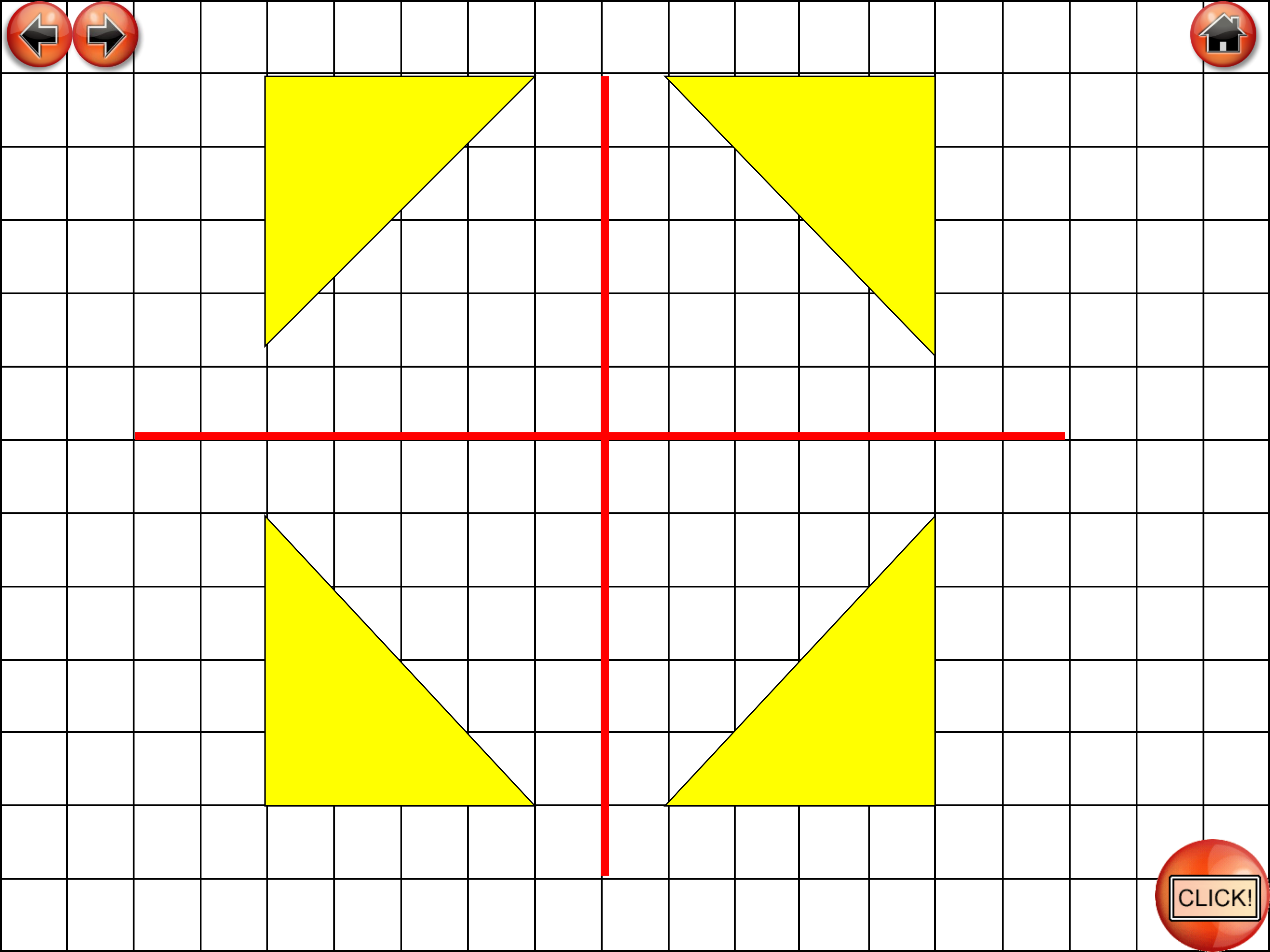
This is a line of symmetry for a square. Notice that both halves of the square are exactly the same.

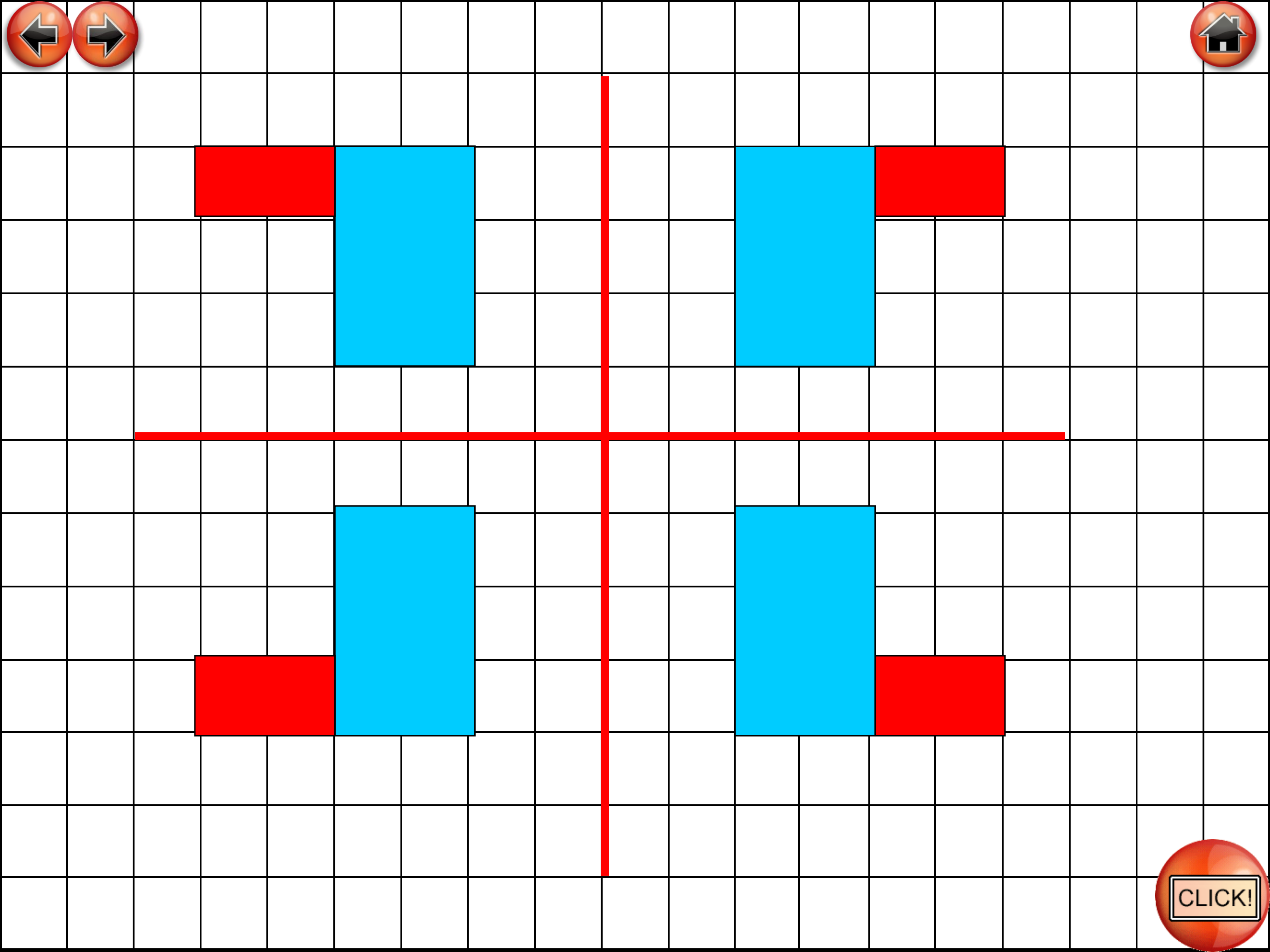
CLICK!

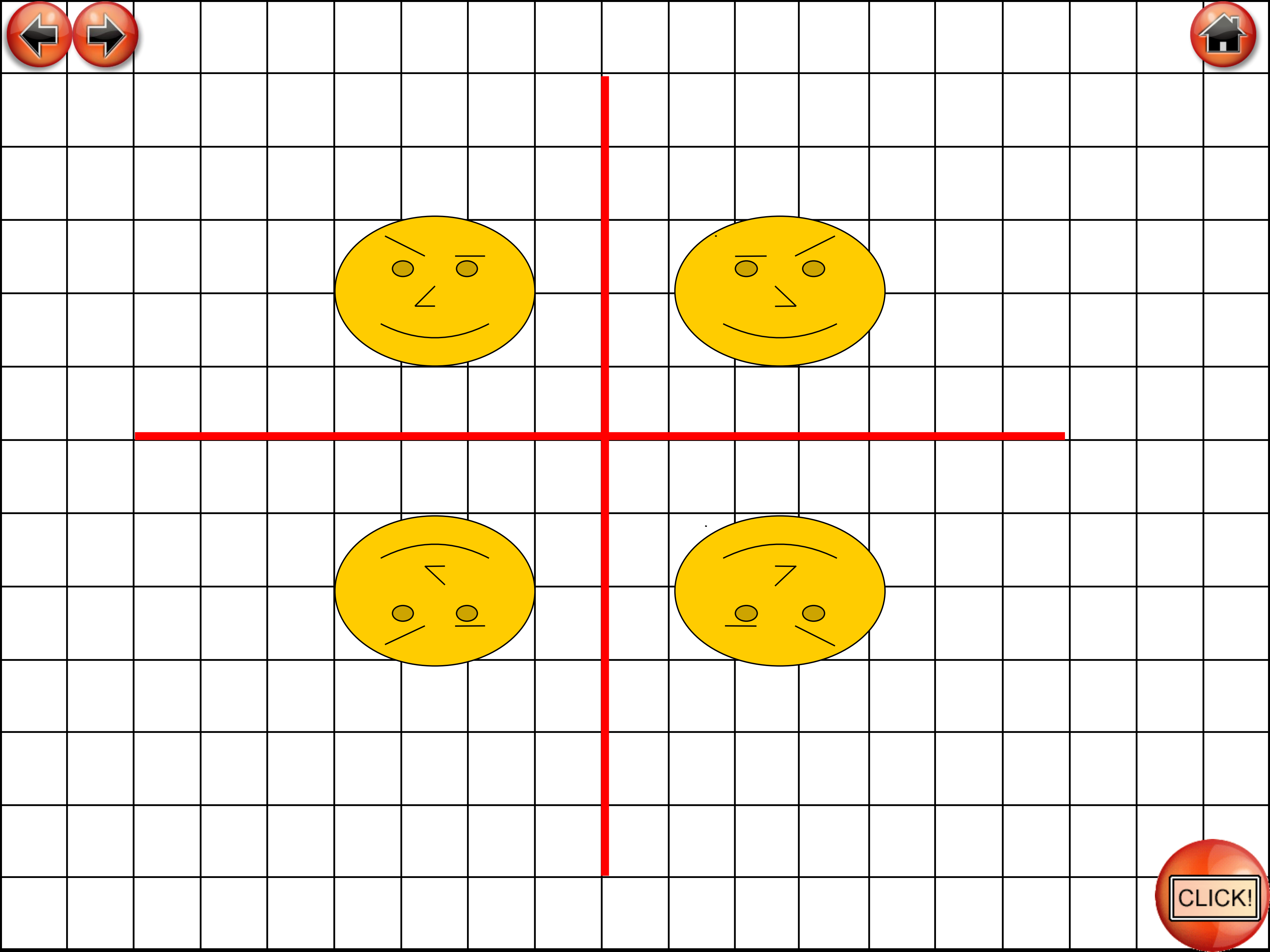
Symmetry Using Horizontal and Vertical Mirror Lines

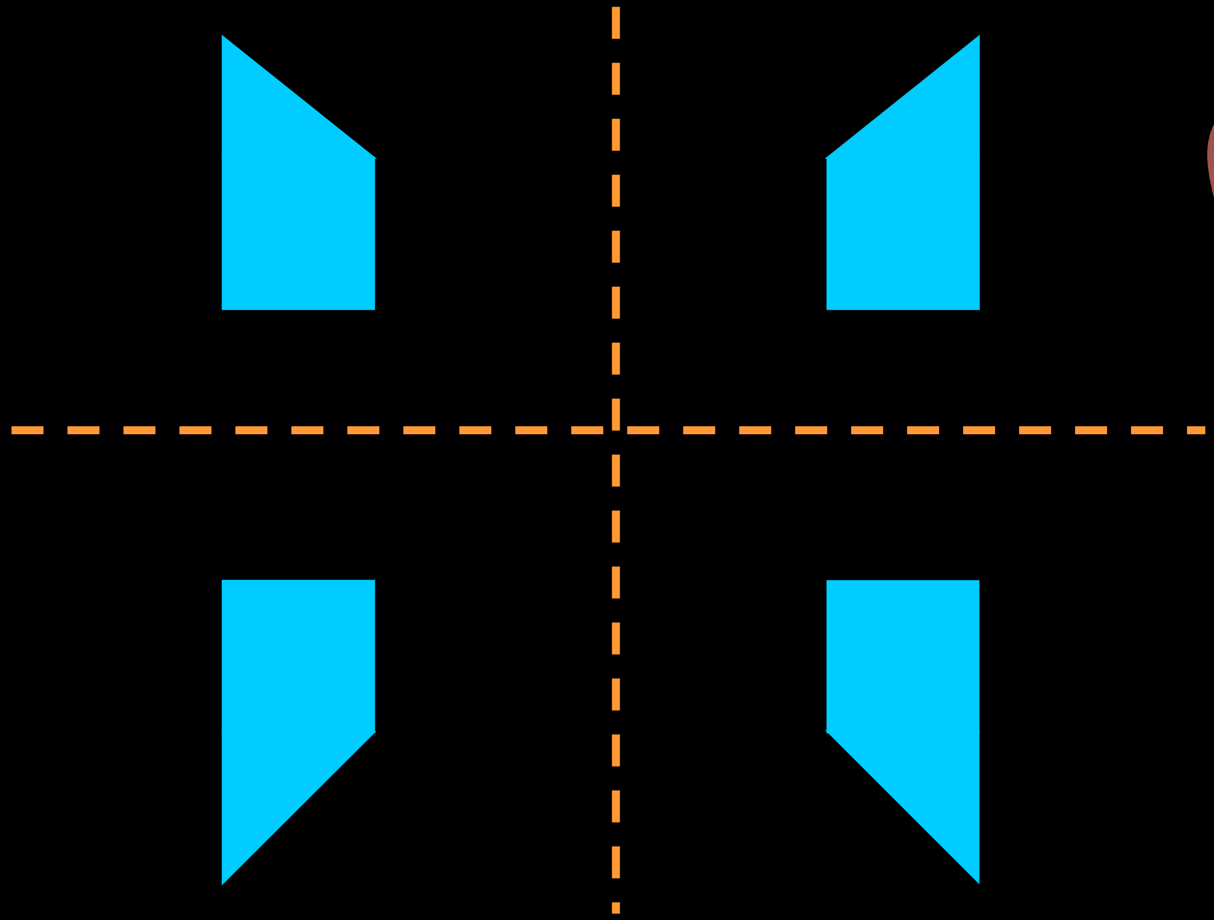


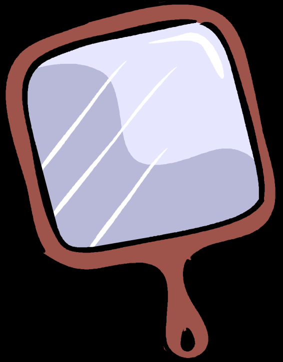
CLICK!


CLICK!


CLICK!

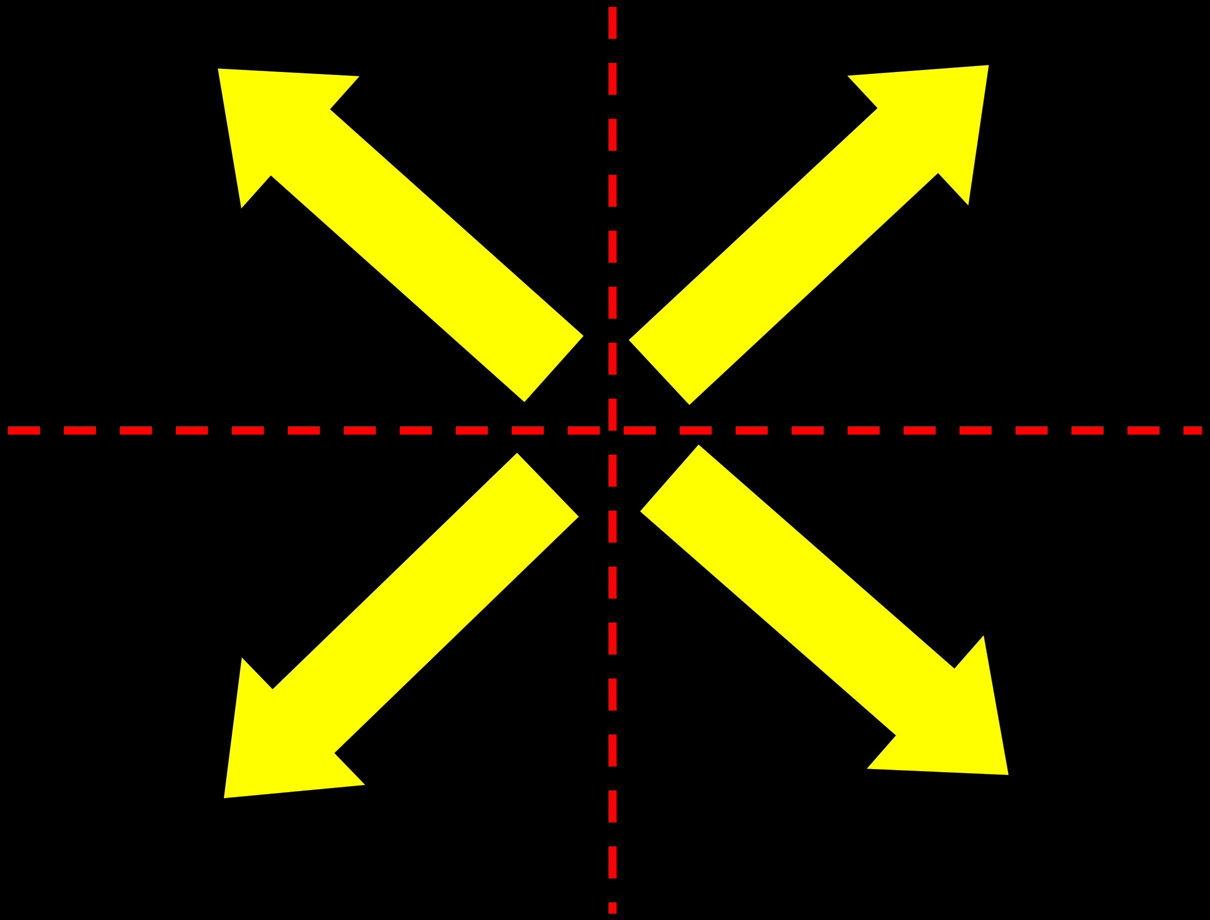

CLICK!

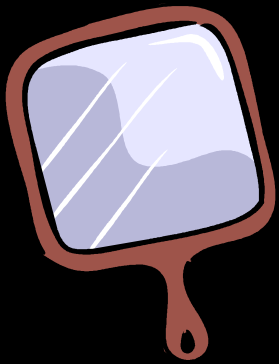




What will this shape look like reflected in the different quadrants?

CLICK!





What will this shape look like reflected in the different quadrants?

CLICK!

Translation

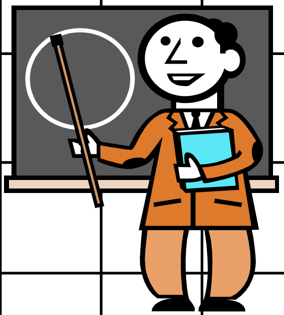
Translation: Translation means moving a shape to a new location. Watch these examples:

10
9
8
7
6
5
4
3
2
1
0

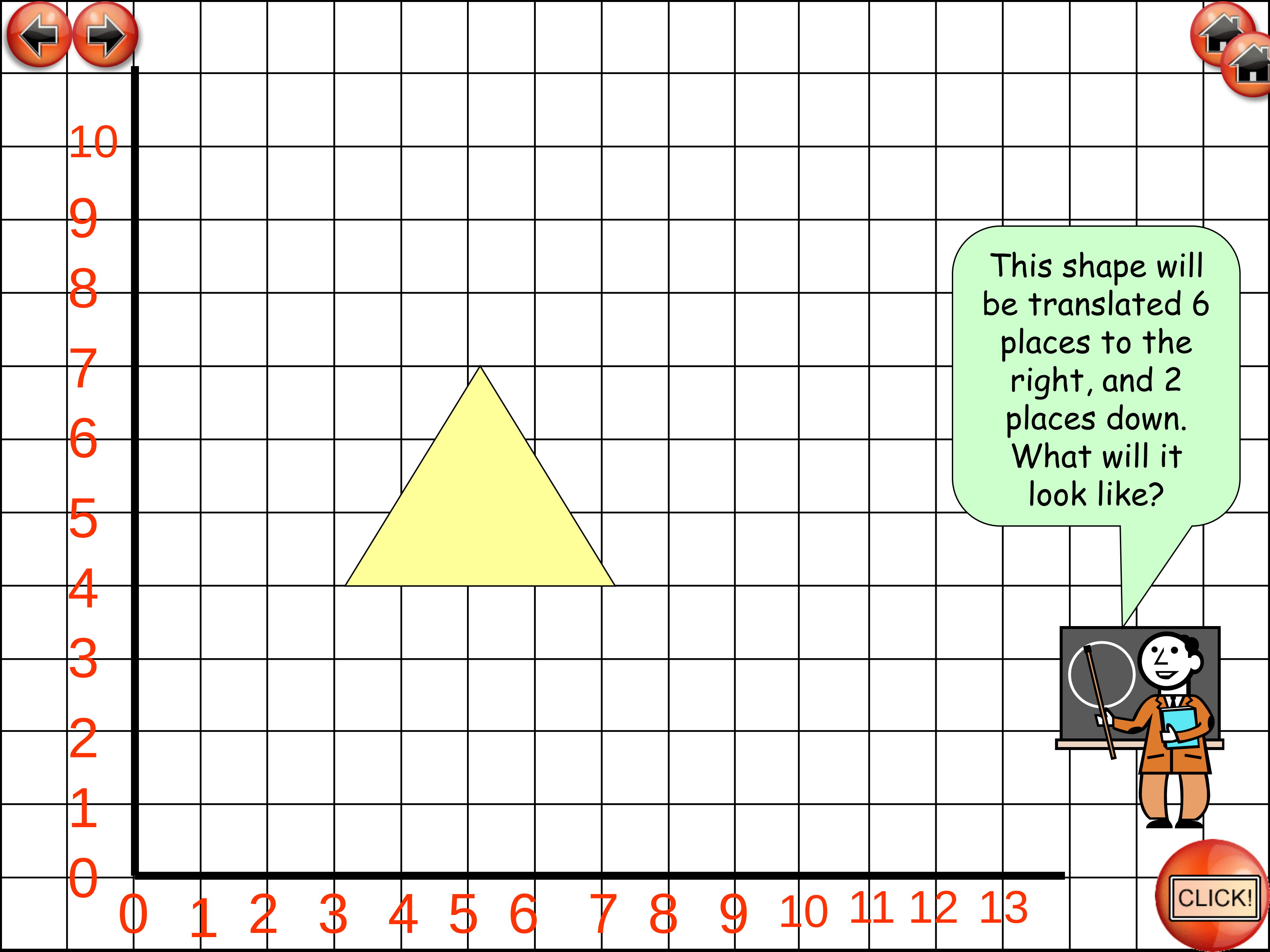
0 1 2 3 4 5 6 7 8 9 10 11 12 13

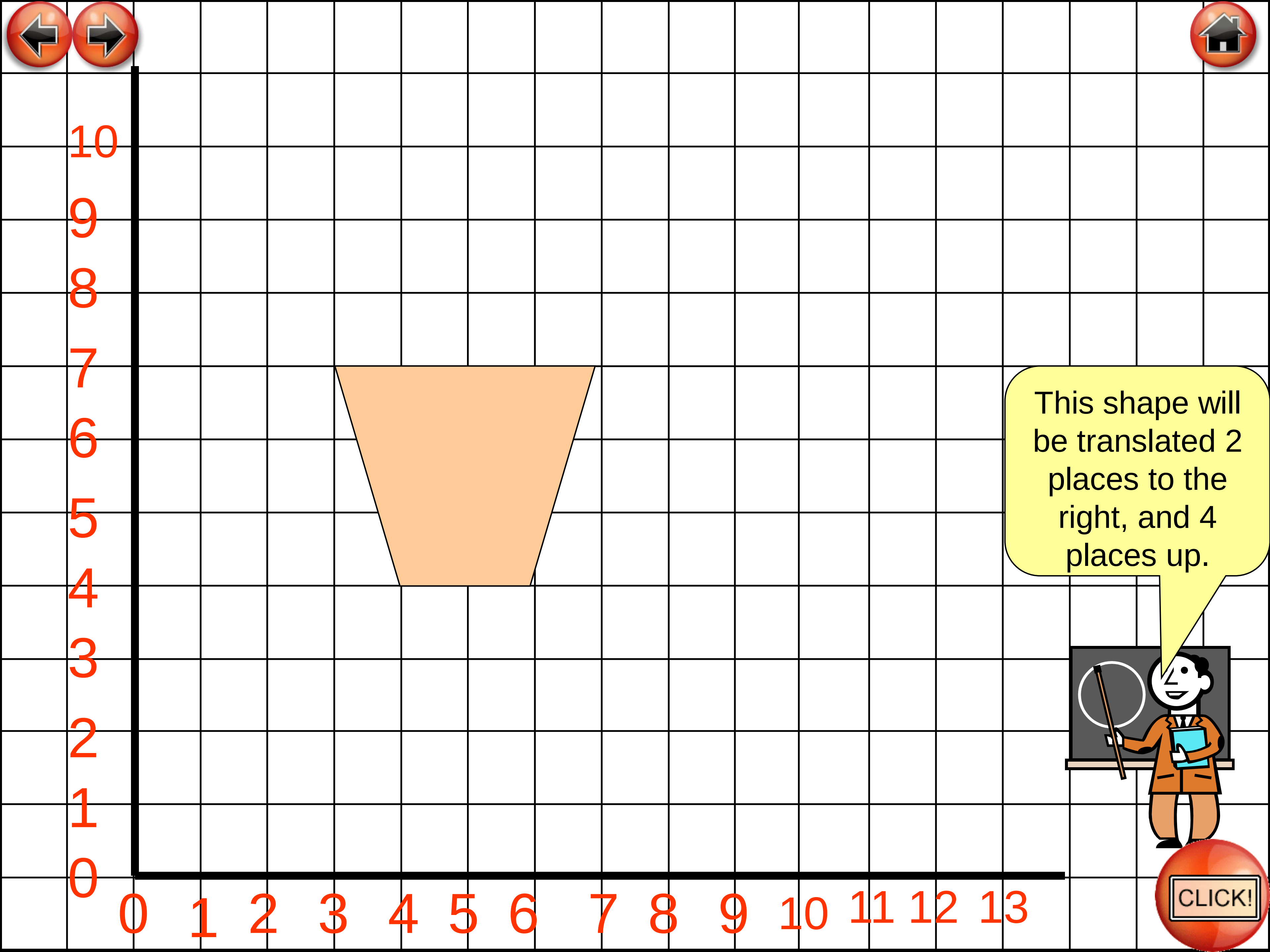
Congruent Shapes

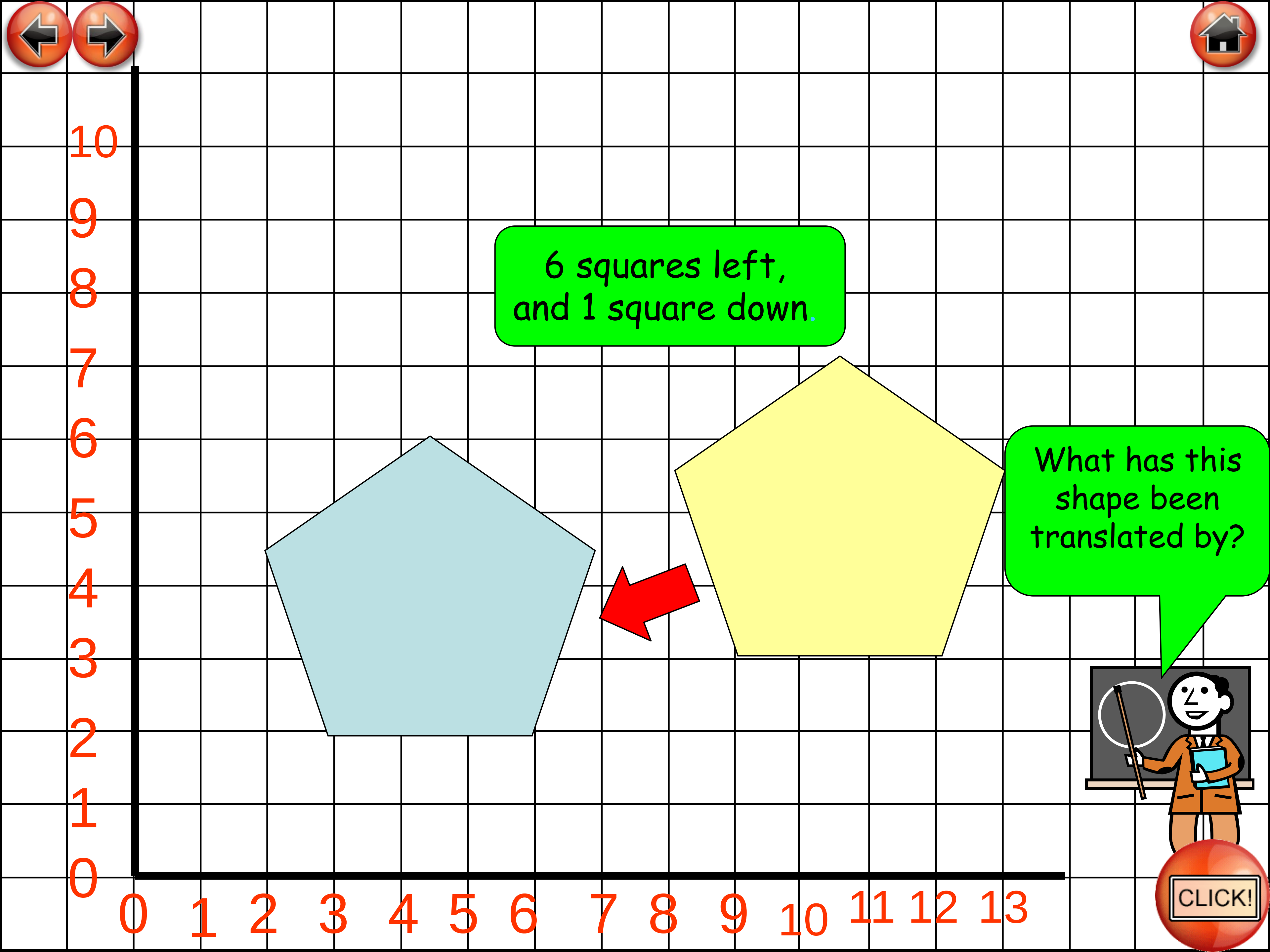
This shape has moved 4 places to the right, and 2 places up.



CLICK!


This shape will be translated 6 places to the right, and 2 places down. What will it look like?
10
9
8
7
6
5
4
3
2
1
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13
CLICK!

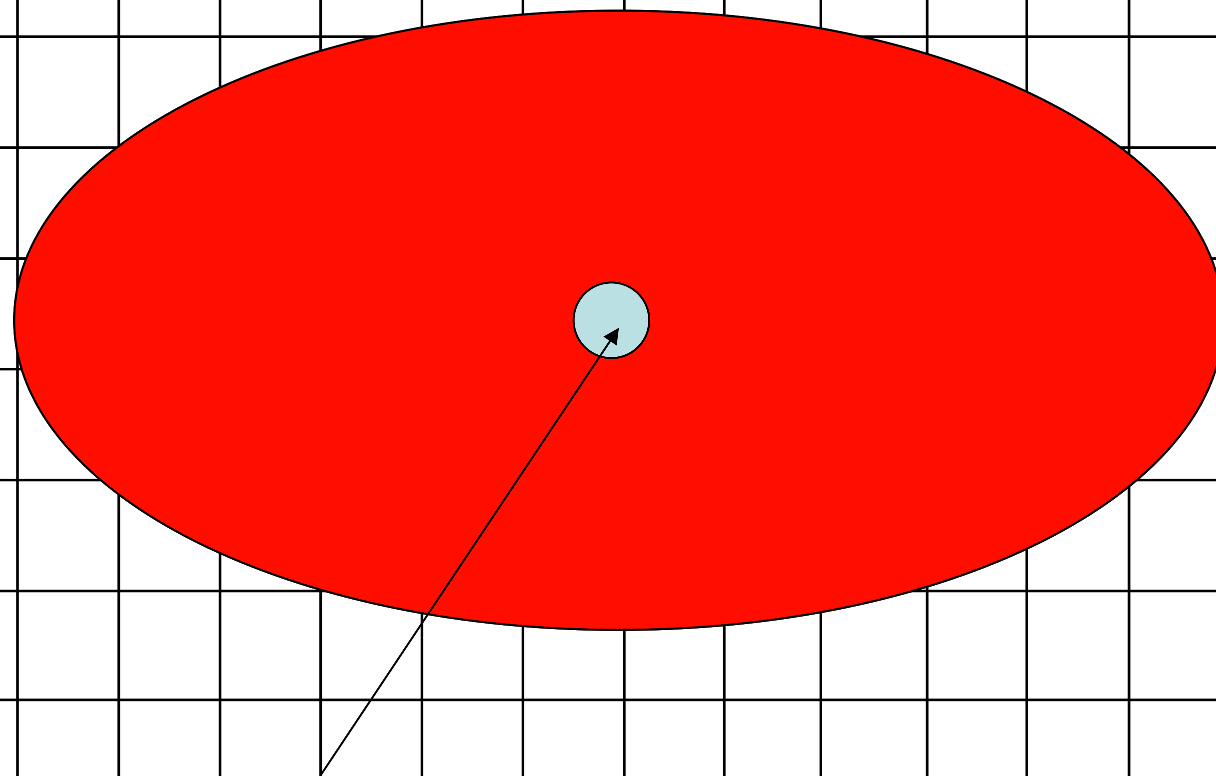

10
9
8
7
6
5
4
3
2
1
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13
This shape will be translated 2 places to the right, and 4 places up.
CLICK!


6 squares left,
and 1 square down.
What has this shape been translated by?
10
9
8
7
6
5
4
3
2
1
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13
CLICK!

Rotational Symmetry

A complete turn (360°)

90° Rotation Clockwise

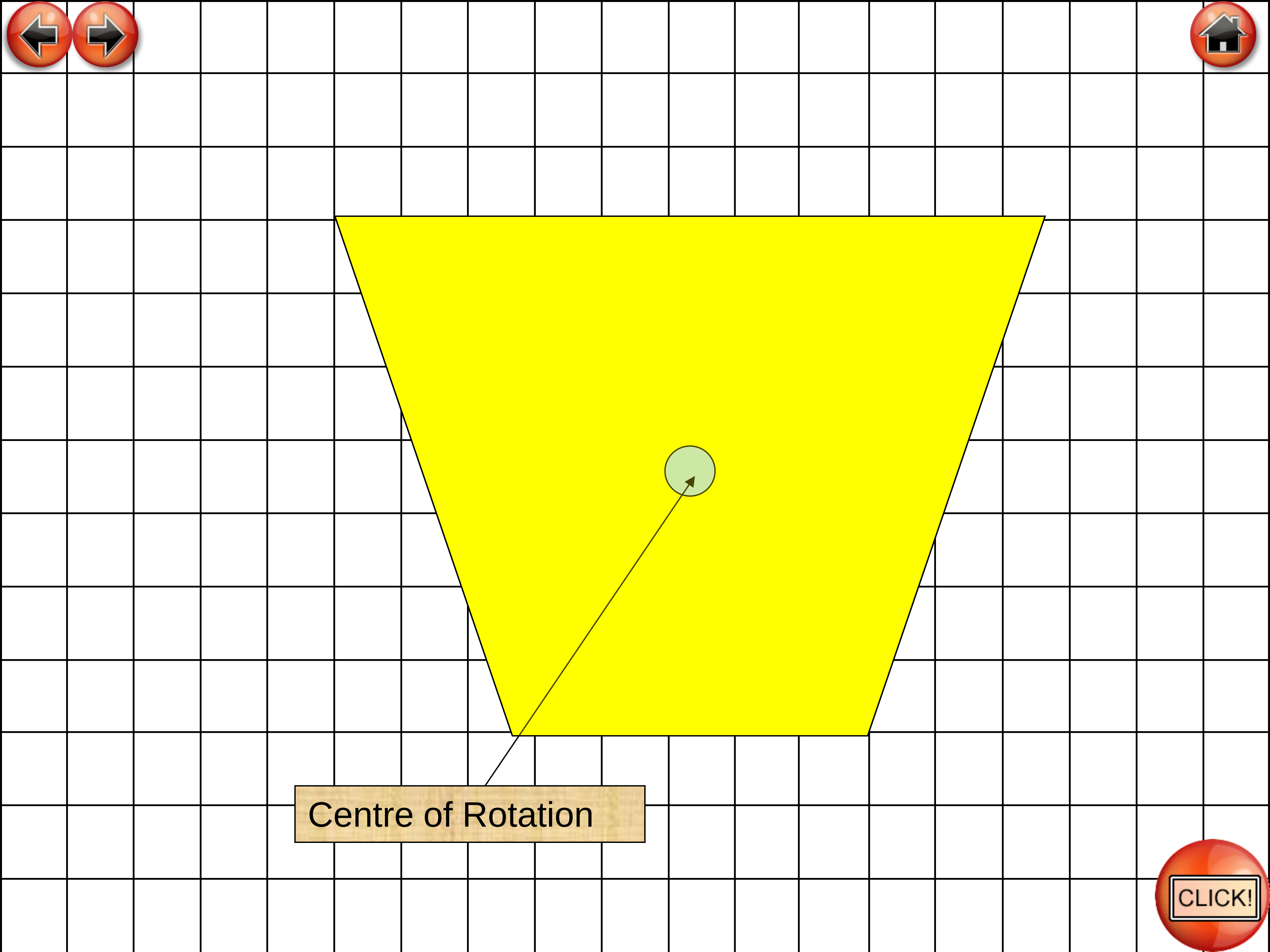


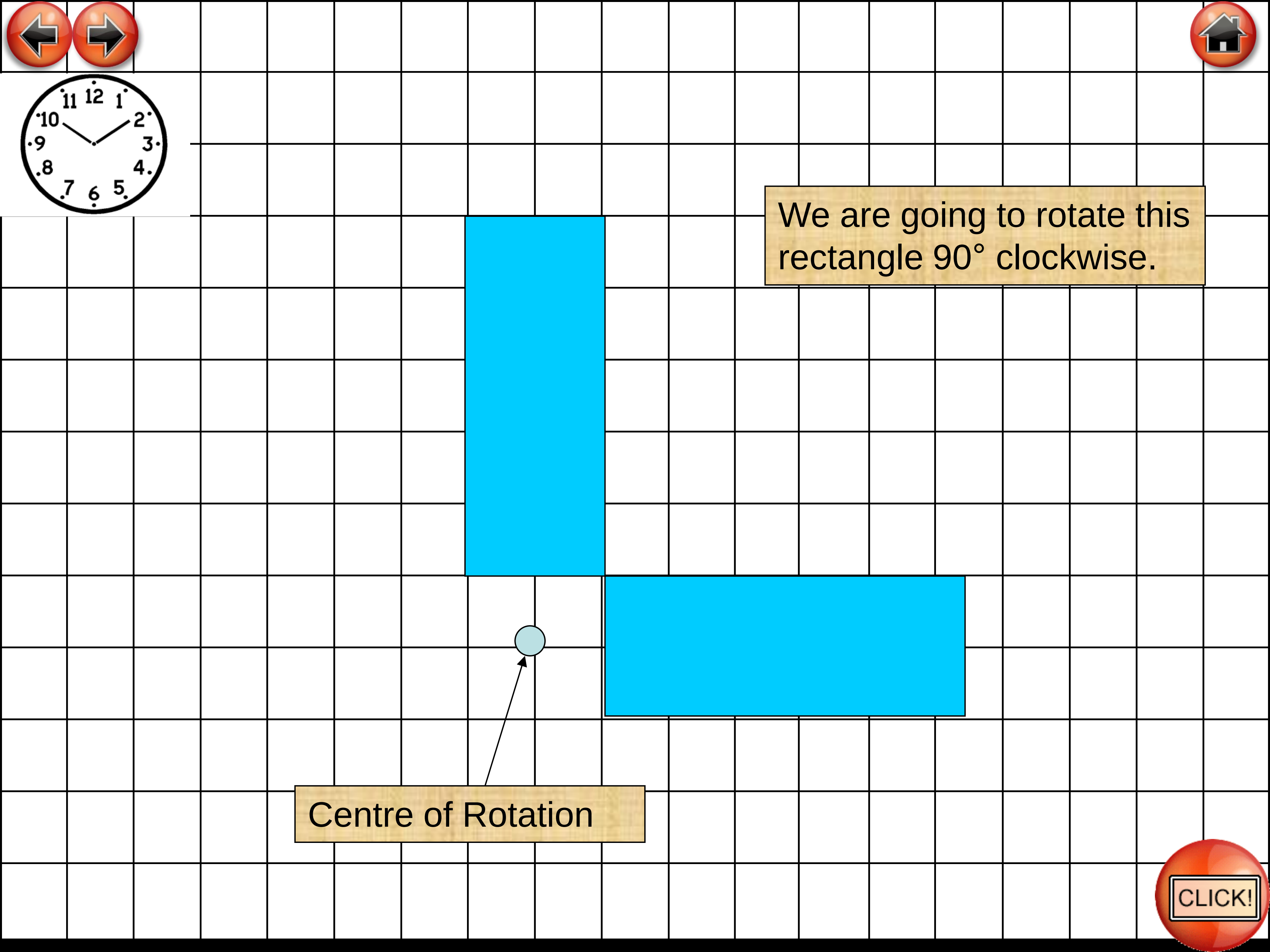
Centre of Rotation

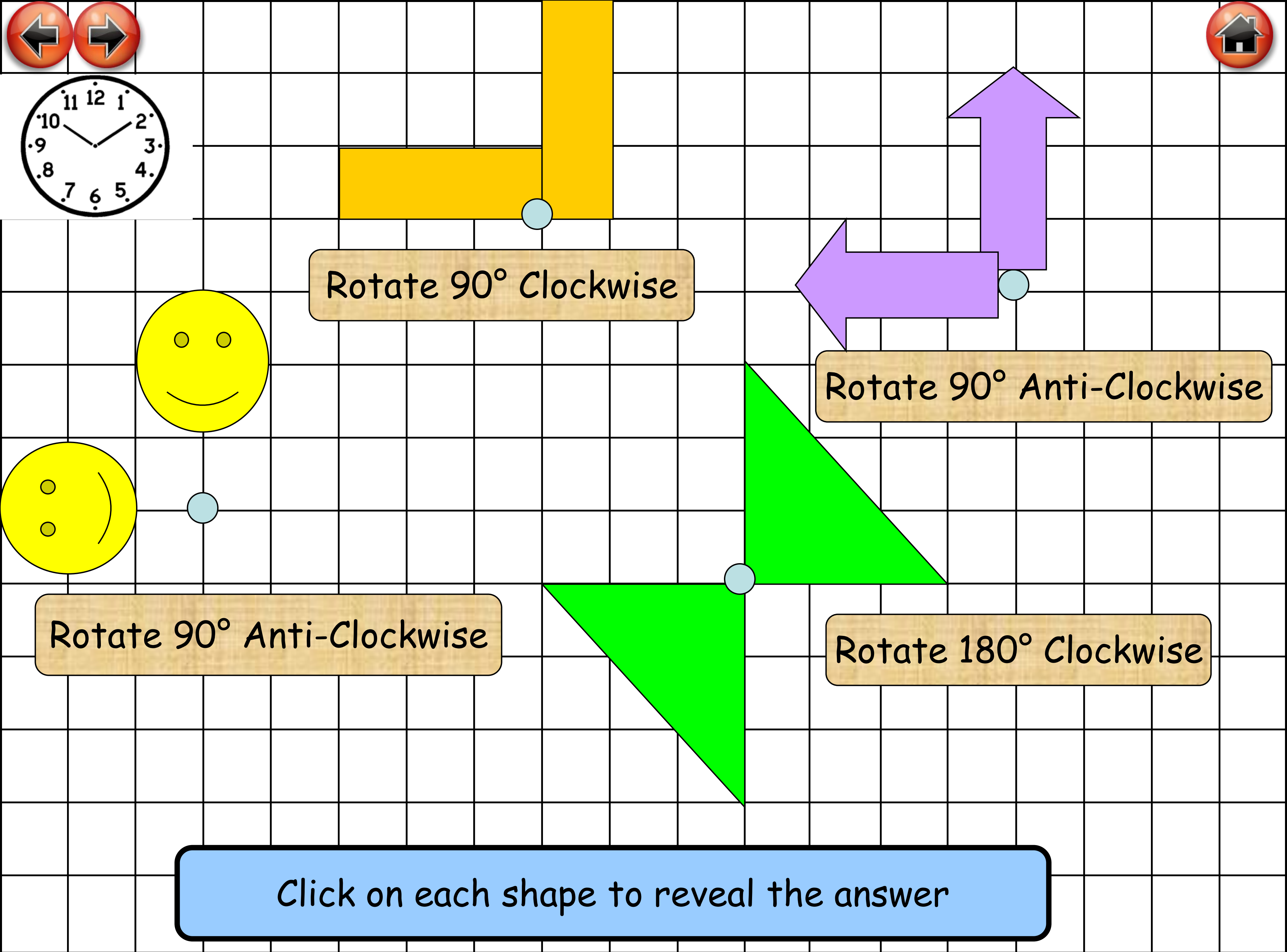
180° Rotation Clockwise

270° Rotation Clockwise

CLICK!


Centre of Rotation
CLICK!

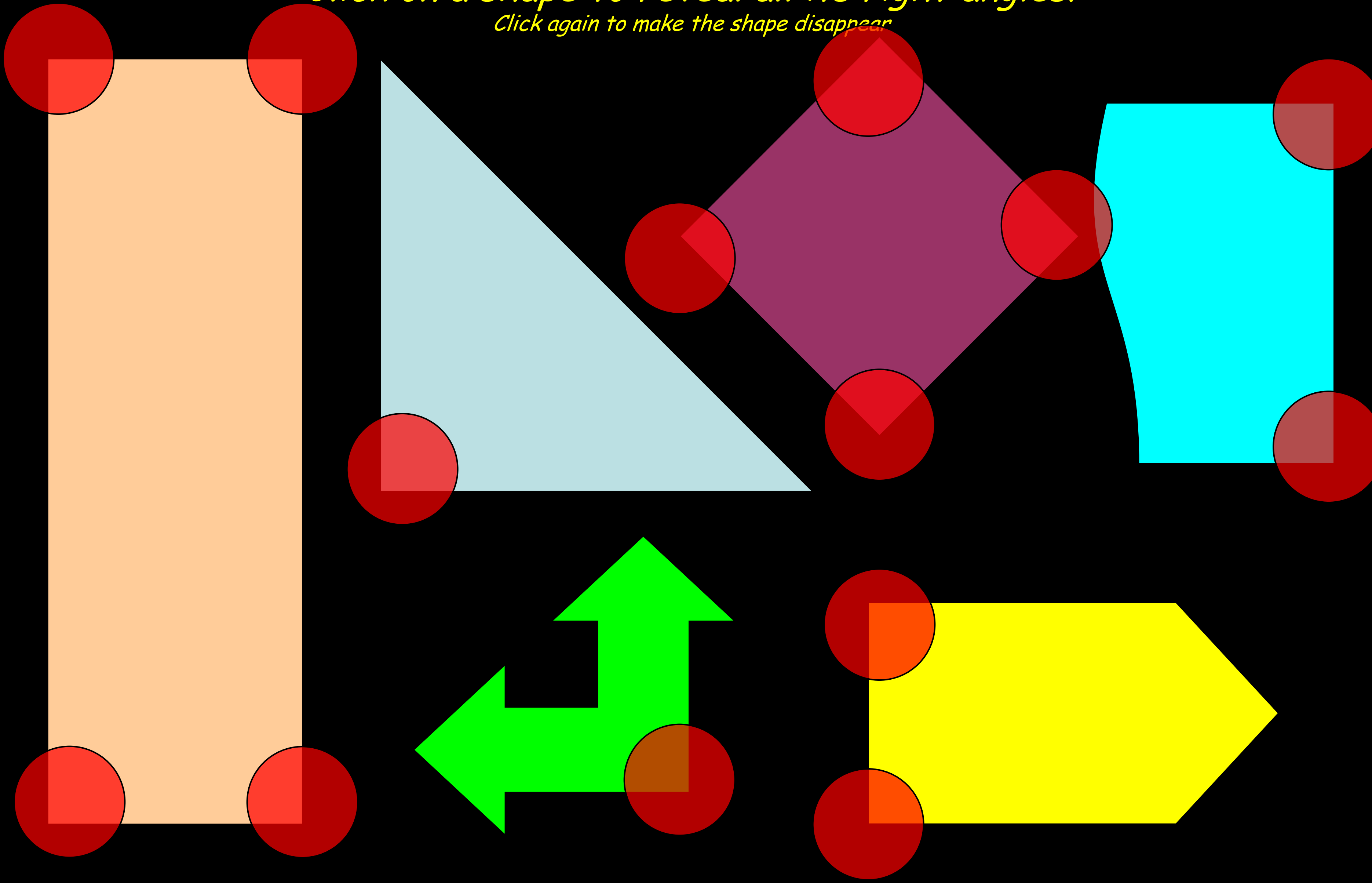

We are going to rotate this rectangle 90° clockwise.
Centre of Rotation
CLICK!


Rotate 90° Clockwise
Rotate 90° Anti-Clockwise
Rotate 90° Anti-Clockwise
Rotate 180° Clockwise
Click on each shape to reveal the answer

Finding Right Angles

Click on a shape to reveal all its right angles!

Click again to make the shape disappear



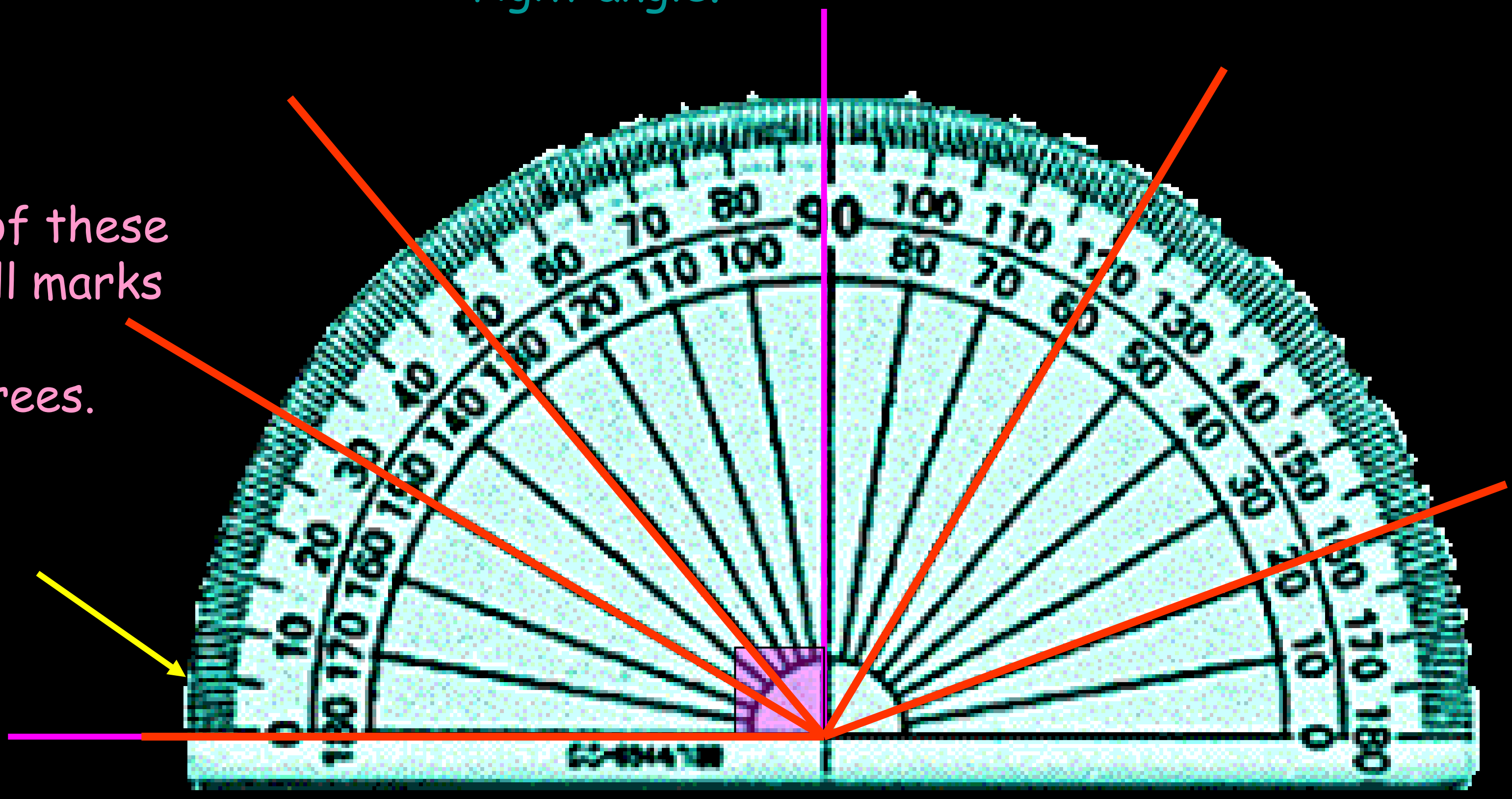
Measuring Angles

This is a protractor! It is used to measure angles.

Click an angle to see what it looks like:

There are 90° in a right angle.

All of these small marks are degrees.



50°

30°

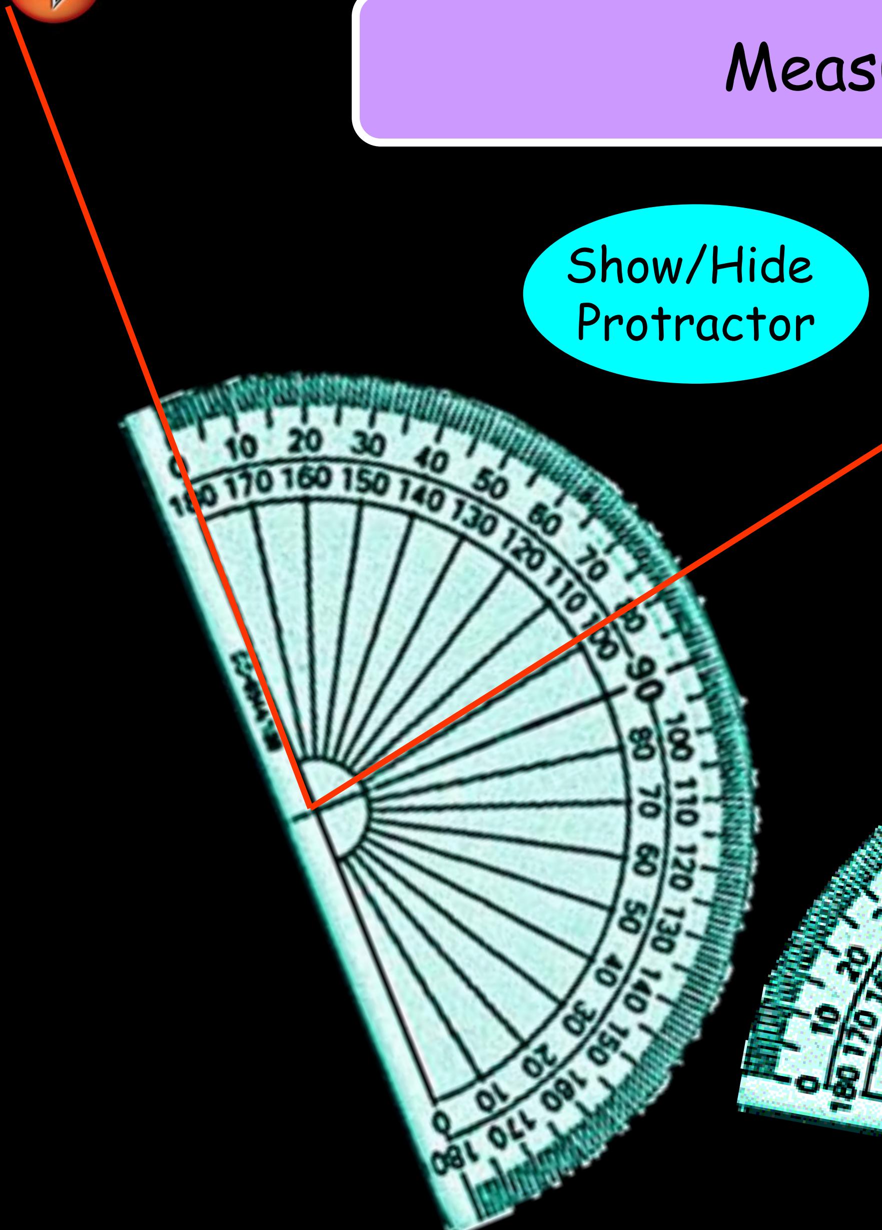
120°

160°

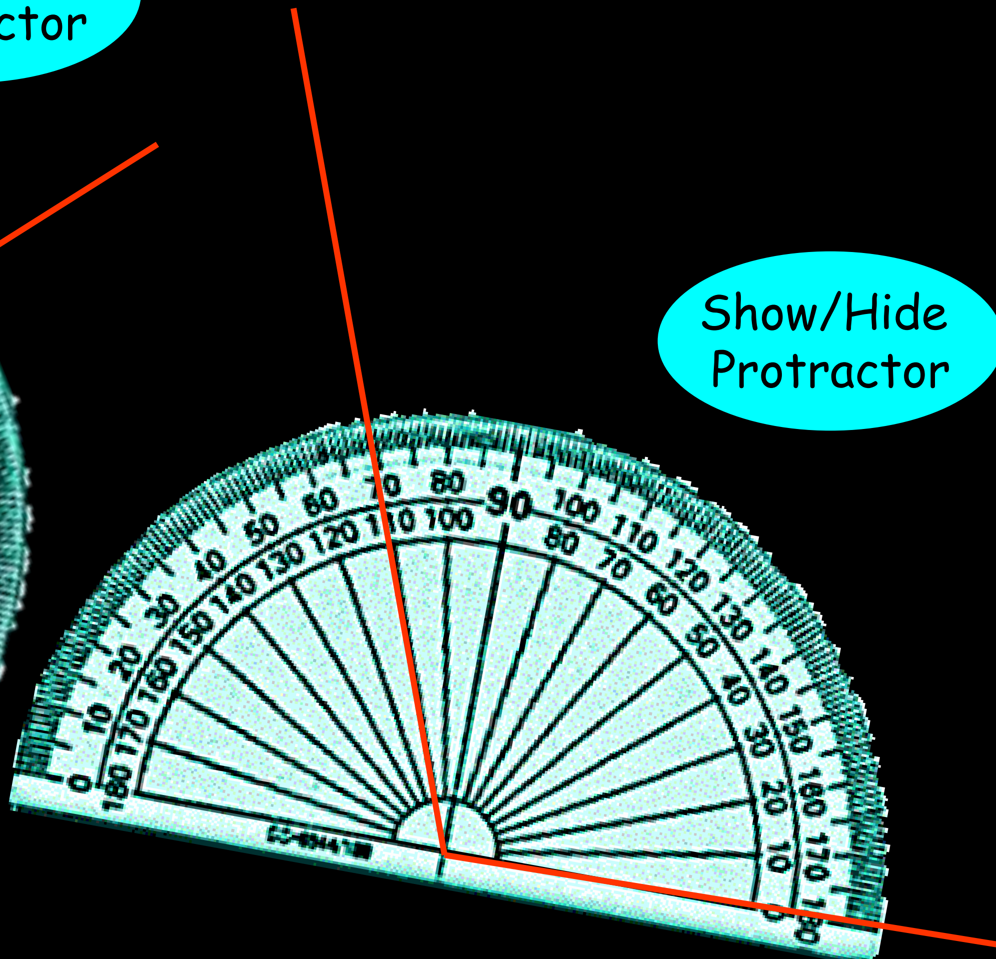
CLICK!

Measuring Angles

Show/Hide Protractor

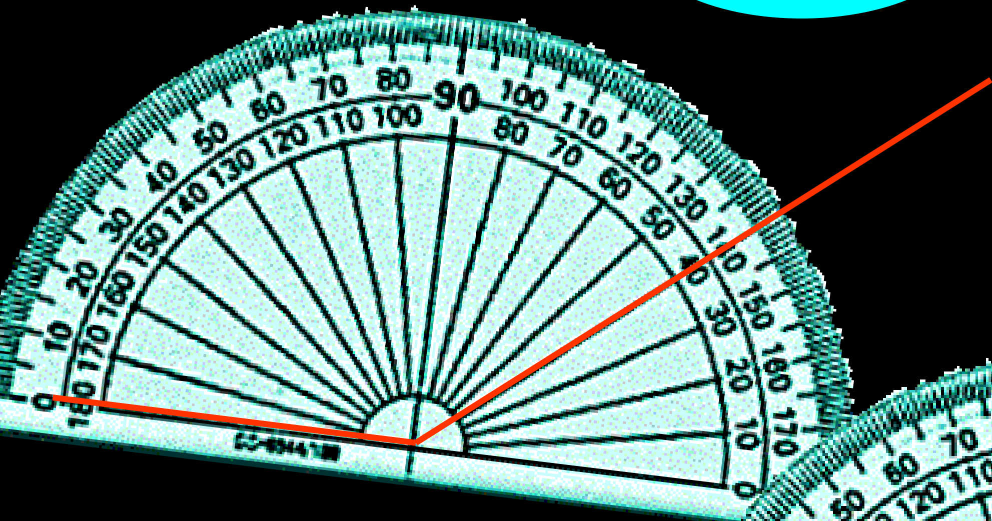


Show/Hide Protractor

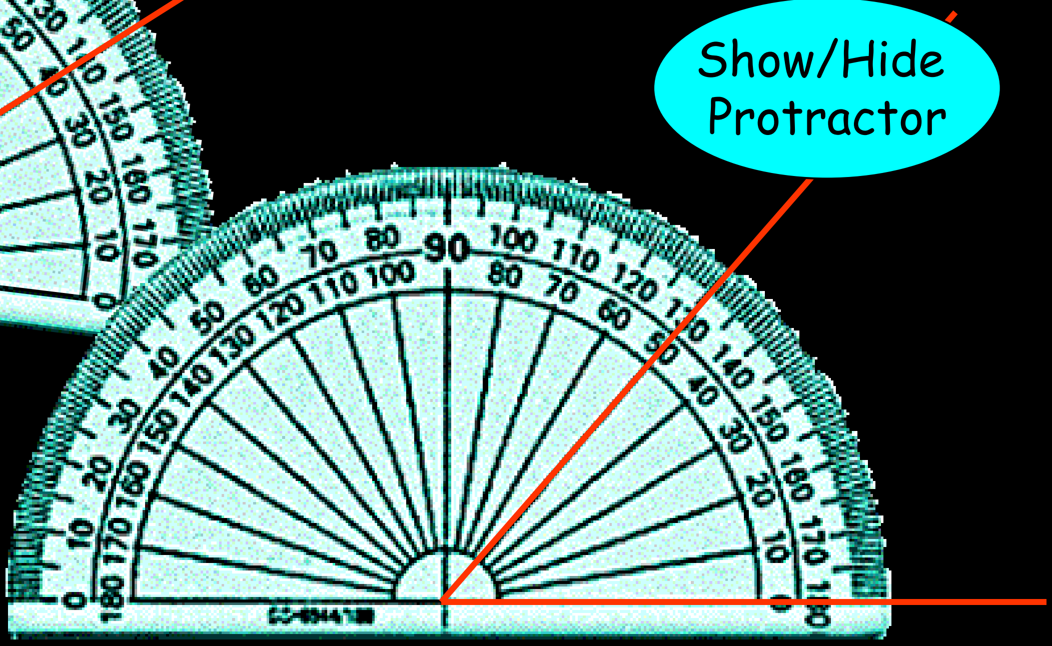


Measuring Angles

Show/Hide Protractor



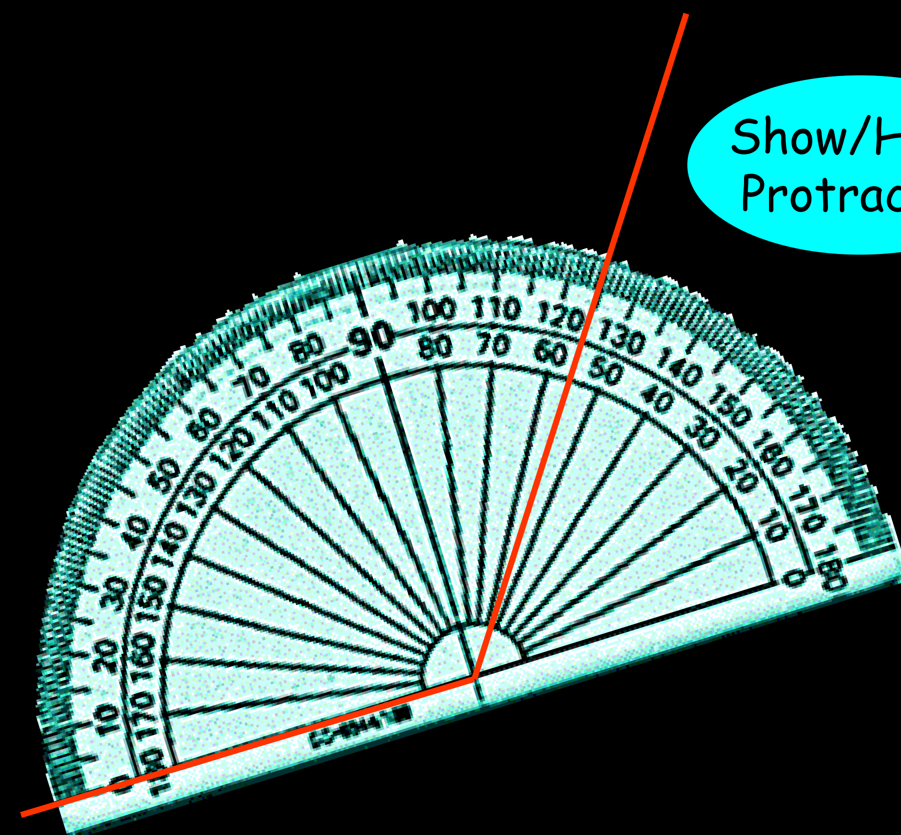
Show/Hide Protractor



Measuring Angles

Show/Hide Protractor

Show/Hide Protractor



Can you Estimate the Angles?

Click on the angles to match them to the corners

- 20°
- 160°
- 60°
- 125°
- 85°