

SMILE WORKCARDS

Angle Pack One

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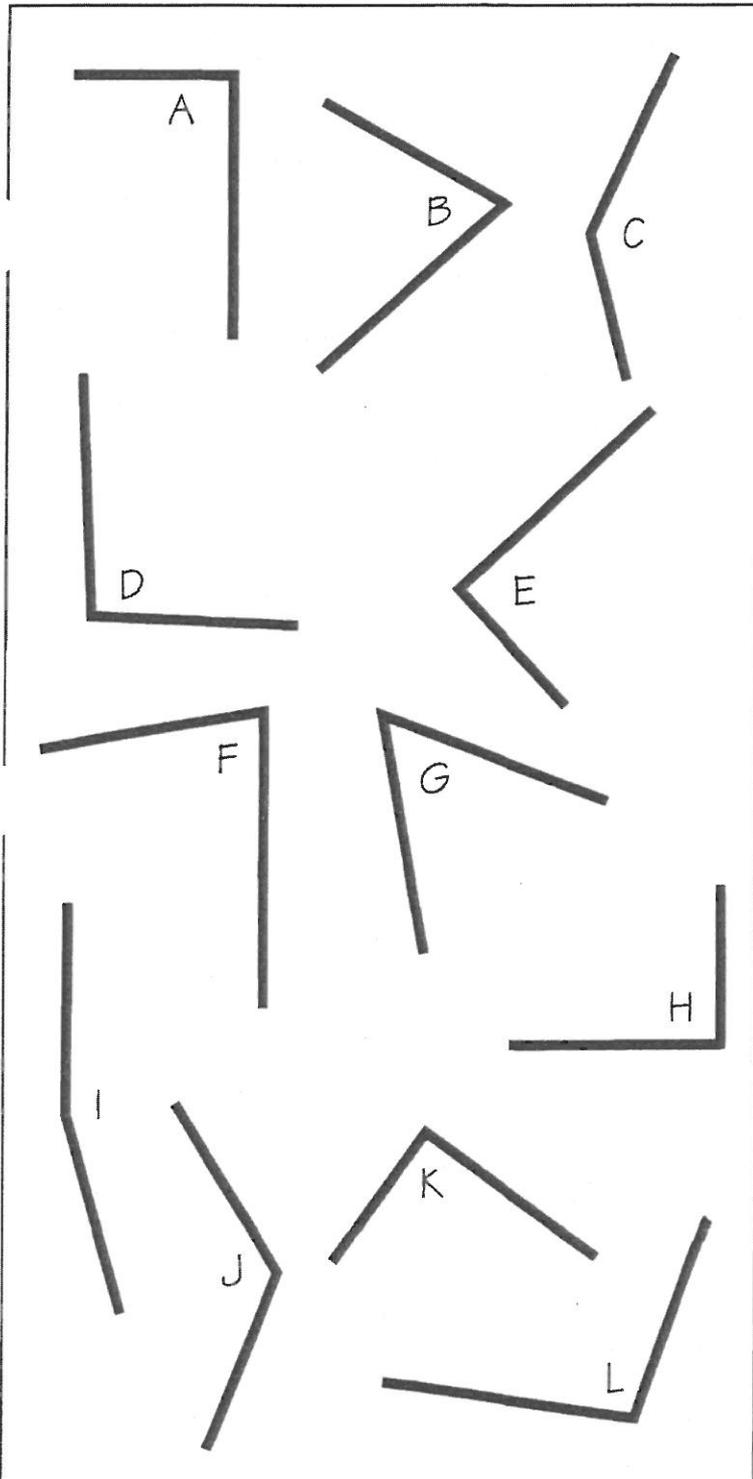
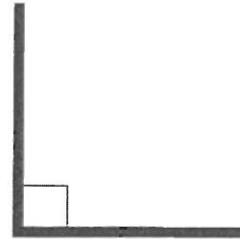
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Right-angle or not?

You will need tracing paper.

There are many **right-angles** around. For example, the corners of this card are right-angles.

This is a **right-angle**.



1. Trace the right-angle and place it over the top of the angles to find out which ones are **right-angles**.
2. Copy and complete the table.

Angle	Right-angle
A	Yes
B	No
C	
D	
E	
F	
G	
H	
I	
J	
K	
L	

3. Draw a right-angle in your book.
4. Find 5 things around your classroom that have right-angles.

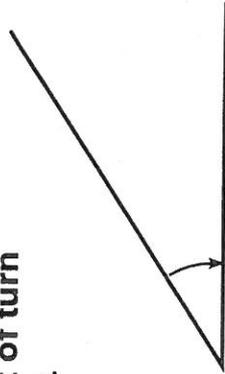
Write a list of them in your book.

Check these with your teacher.

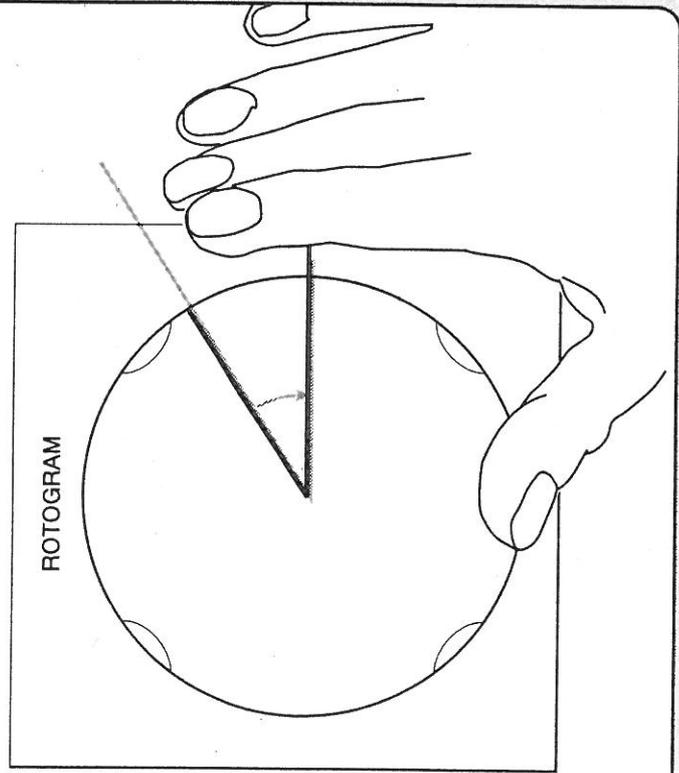
Equal angles

You will need a rotogram or tracing paper.

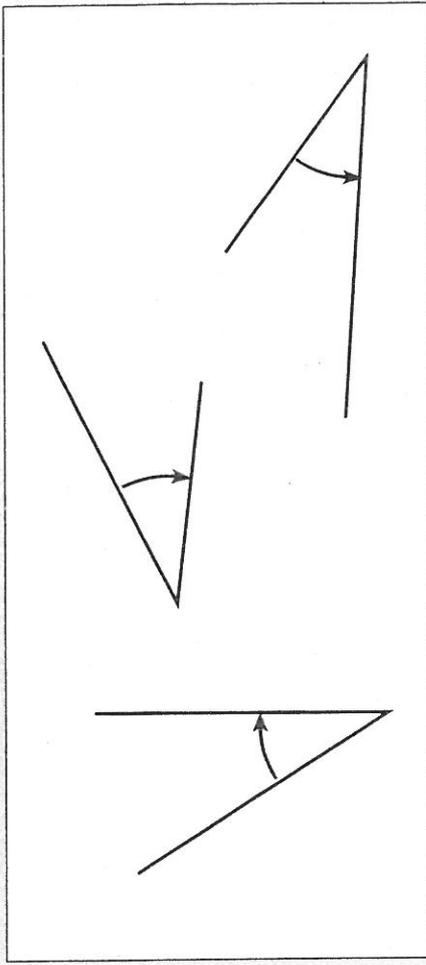
An **angle** is the **amount of turn** from one line to another.



1. Make your rotogram fit this angle or trace the angle.

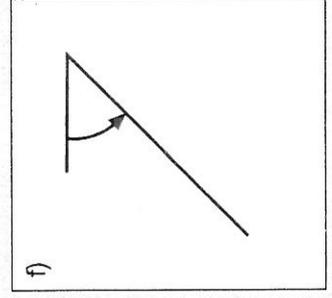
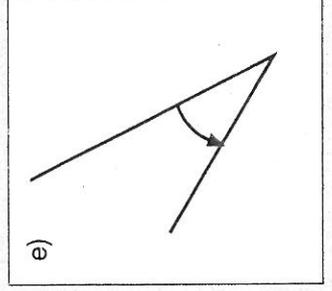
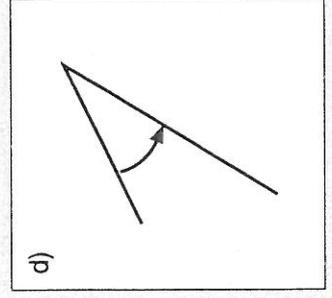
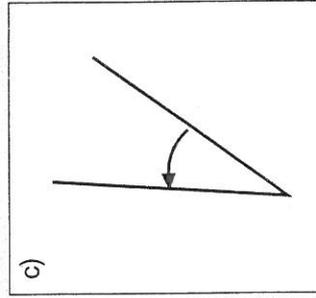
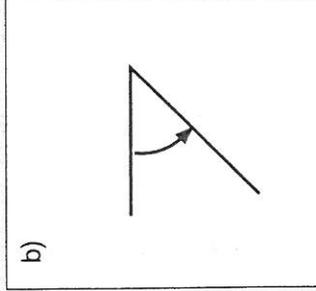
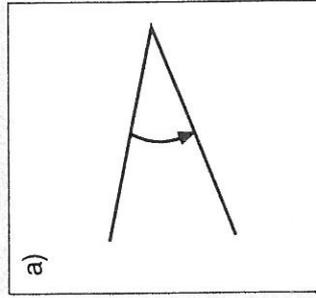


These angles are **equal angles**. They have the same amount of turn.



2. Use your rotogram or tracing paper to check that they are equal.

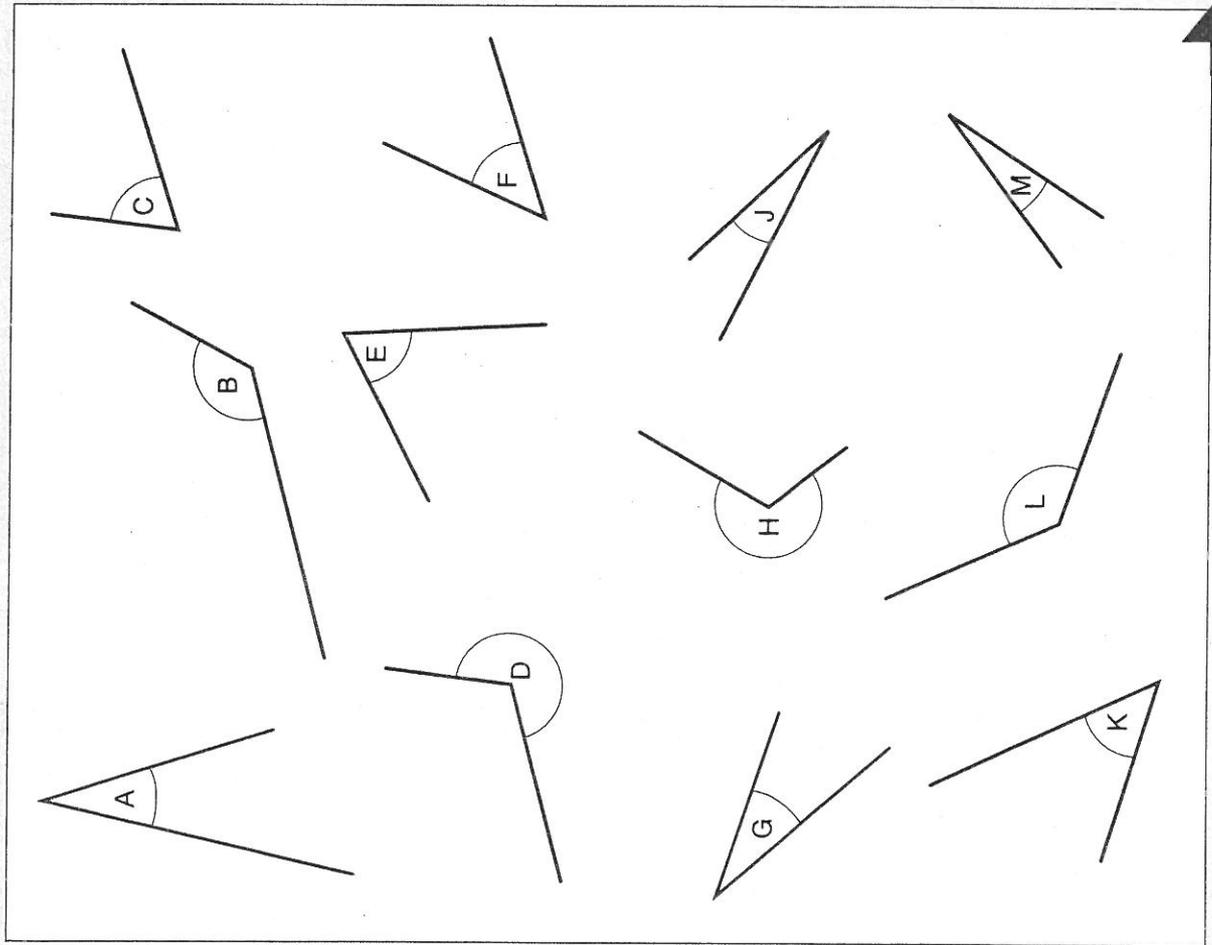
3. Which of these angles are equal to the angle above?



Below, angle A equals angle G.

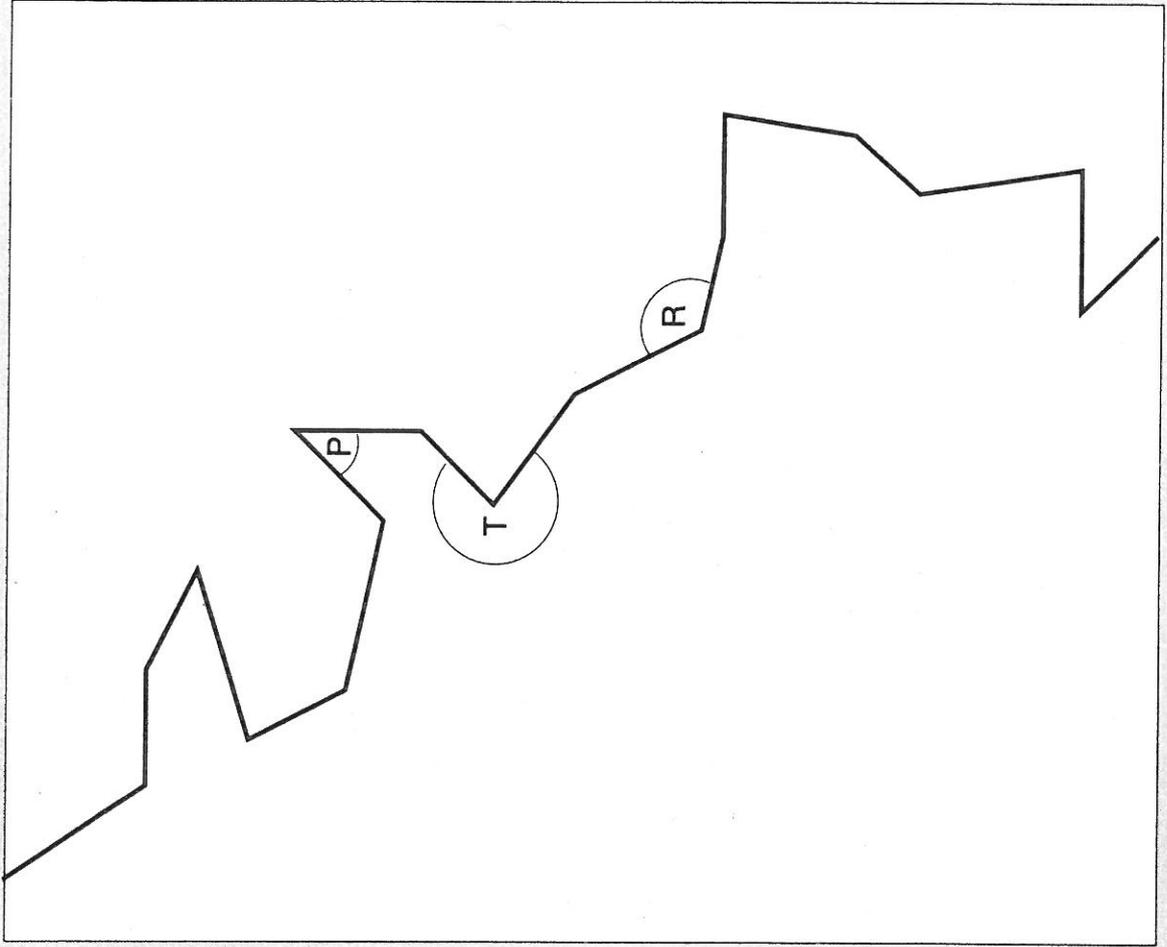
$$\angle A = \angle G.$$

4. Use your rotogram or tracing paper to find five other pairs of equal angles.



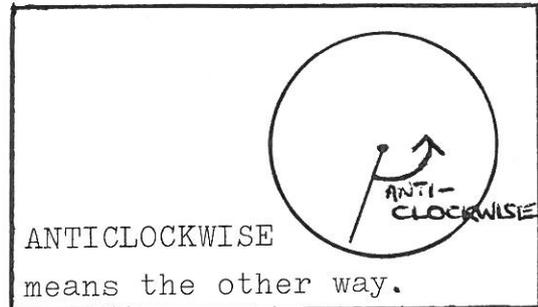
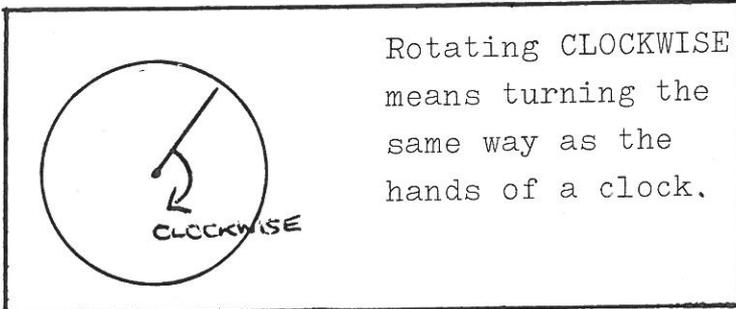
5. Trace this line.

- Mark on all the angles equal to P.
- Mark on all the angles equal to T.
- Mark on all the angles equal to R.

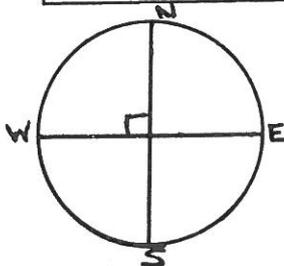


You will need: compasses

Right Angles 1



A quarter turn is called a **RIGHT ANGLE**



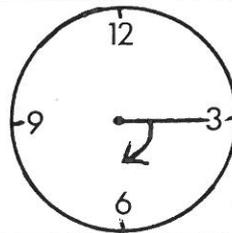
Draw a circle. Mark on N,S,E and W
One right angle has been marked with a square corner. Mark the others the same way.

How many right-angles are there?

Stand. Face North. Rotate clockwise to face South. How many right-angles did you turn through?

The hand of a clock turns from the 3 down to the 6.

How many right angles is this?



Copy and complete this table writing in how many right-angles:-

	Start	Which way	End	Number of Right-angles
(a)	South	Anticlockwise	East	1
(b)	East	Anticlockwise	South	
(c)	South	Clockwise	West	
(d)	North	Clockwise	East	
(e)	West	Anticlockwise	North	
(f)	South	Anticlockwise	North	
(g)	12	Clockwise	6	
(h)	3	Clockwise	12	
(i)	6	Clockwise	9	
(j)	9	Clockwise	3	
(k)	12	Anticlockwise	9	
(l)	12	Anticlockwise	3	

SMILE

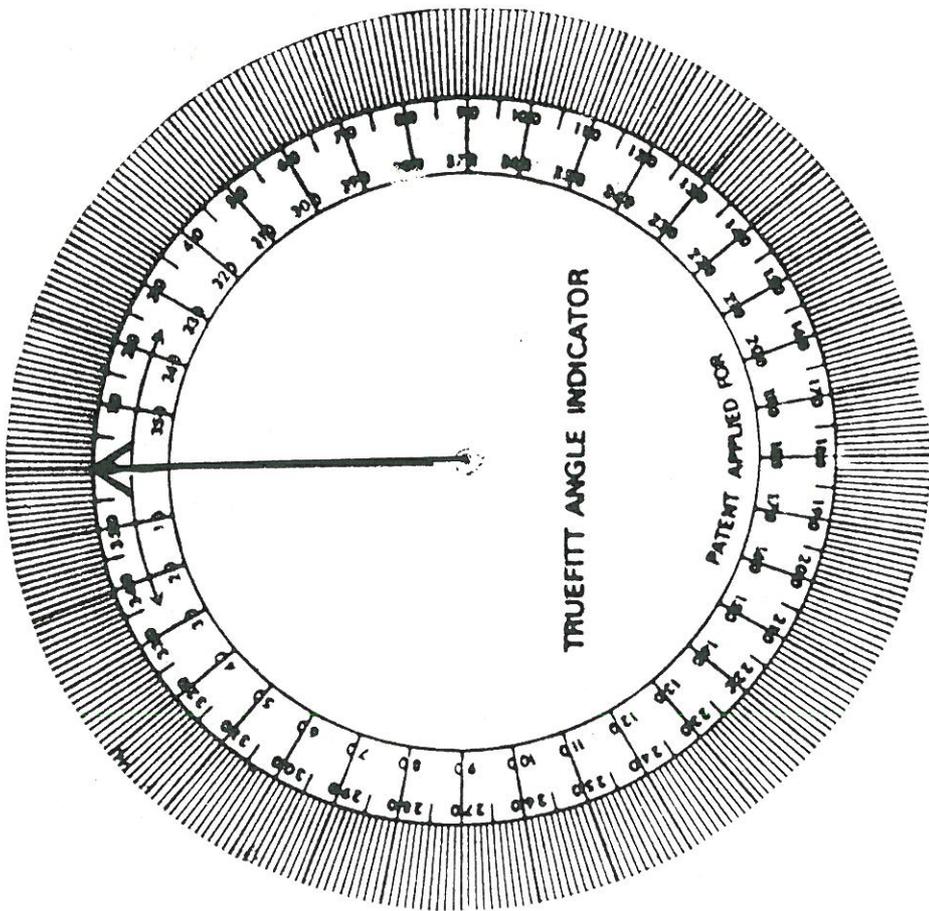
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Measuring angles

Several thousand years ago, the Babylonians needed an accurate measure of angles. Because there are roughly 360 days in a year, it is said that they decided to split a turn into 360 divisions called degrees.

Use an angle indicator →

The arrow is pointing to the zero mark.



Rotate the arrow one full turn.

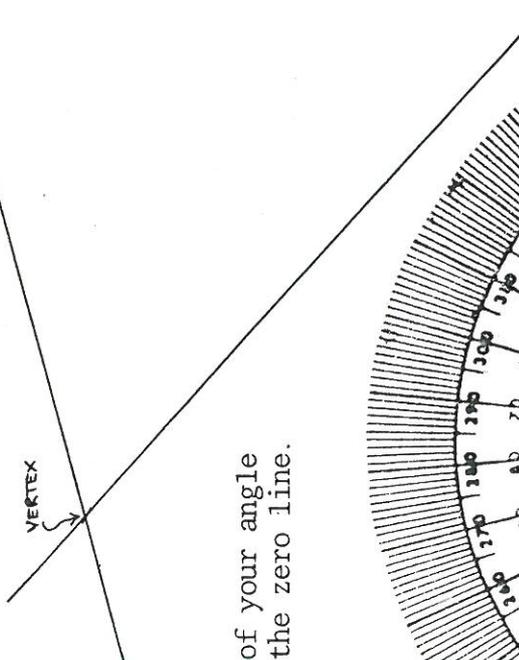
1. How many degrees have you turned it?
- Now rotate the arrow through a right-angle.
2. How many degrees have you turned it?

Three ways to measure angles

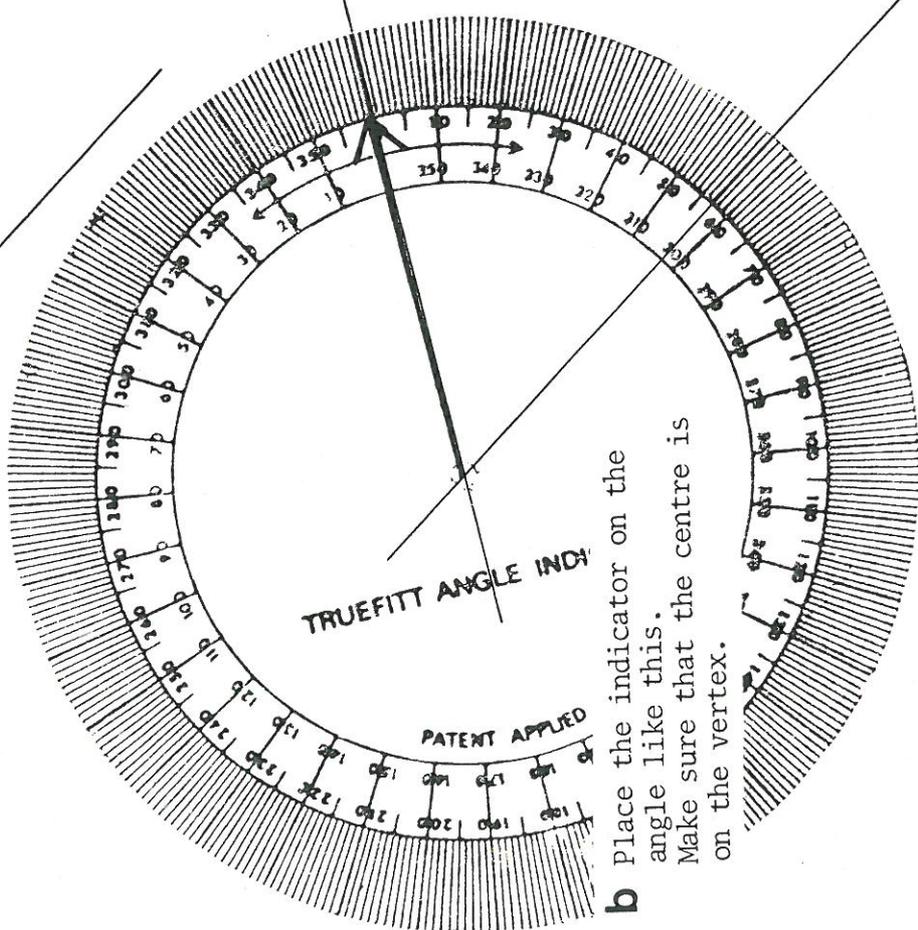
3 Copy and complete :

Angle	size (in turns)	size (in degrees)	size (in right angles)
	1 turn	360 degrees (360°)	4 right angles
	turn	180°	right angles
	turn	°	right angles
	turn	°	right angles
	$\frac{1}{8}$ turn	°	right angles

To measure the size of this angle



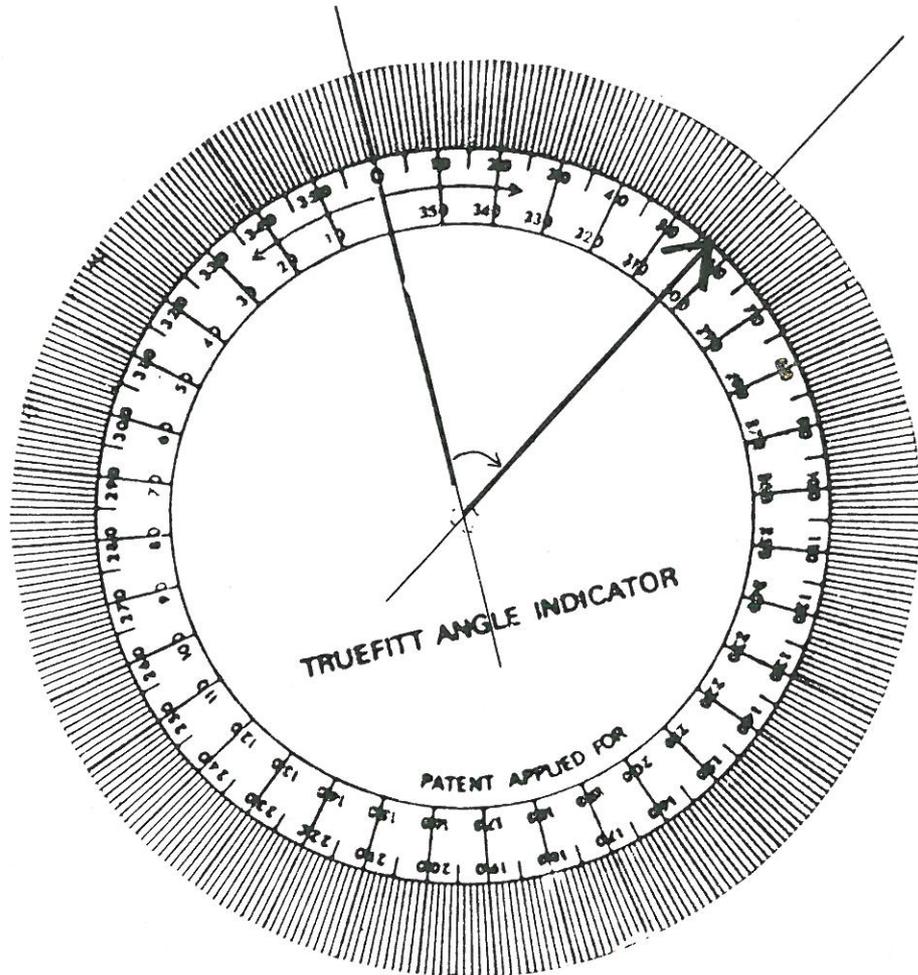
a Turn the arrow of your angle indicator onto the zero line.



b Place the indicator on the angle like this. Make sure that the centre is on the vertex.

~ 4 ~

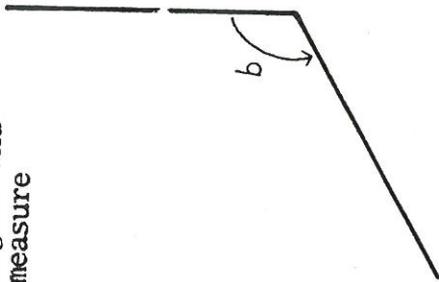
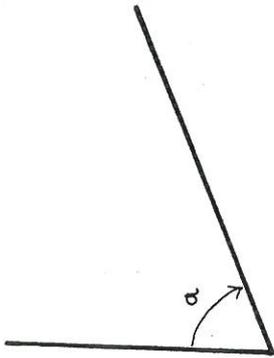
c Turn the arrow to point along the other arm of the angle.



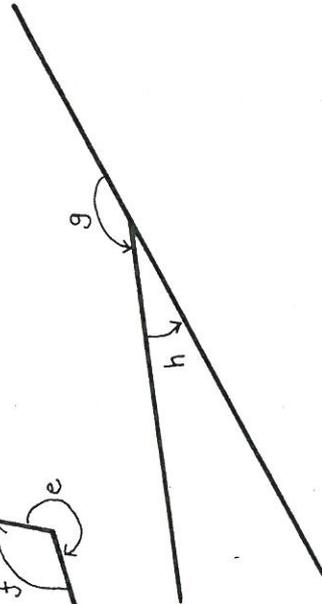
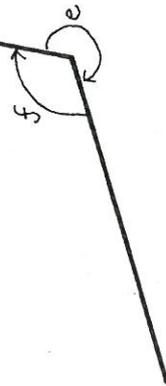
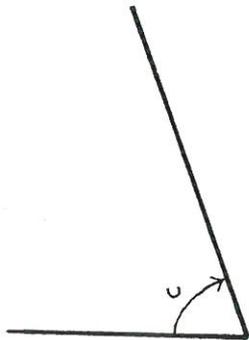
d Record the size of the angle.

~ 5 ~

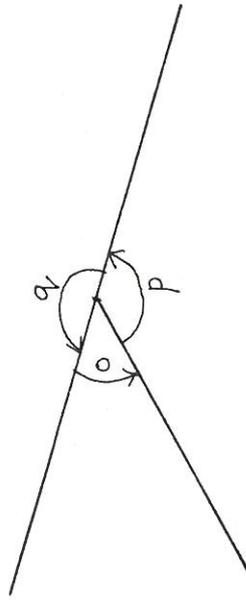
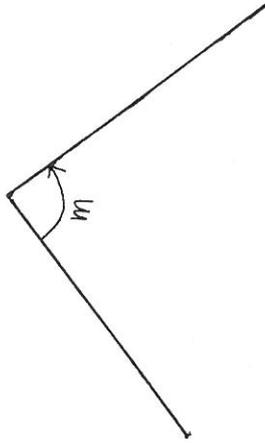
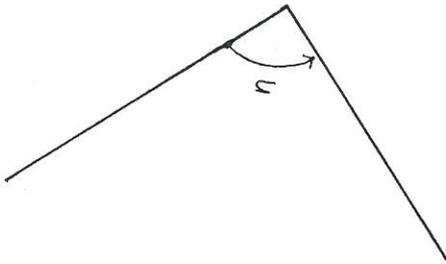
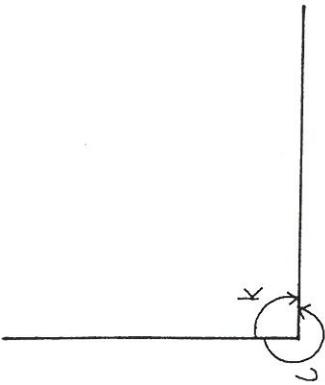
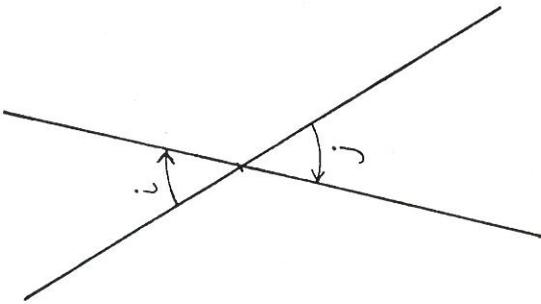
then use your angle indicator to measure them accurately



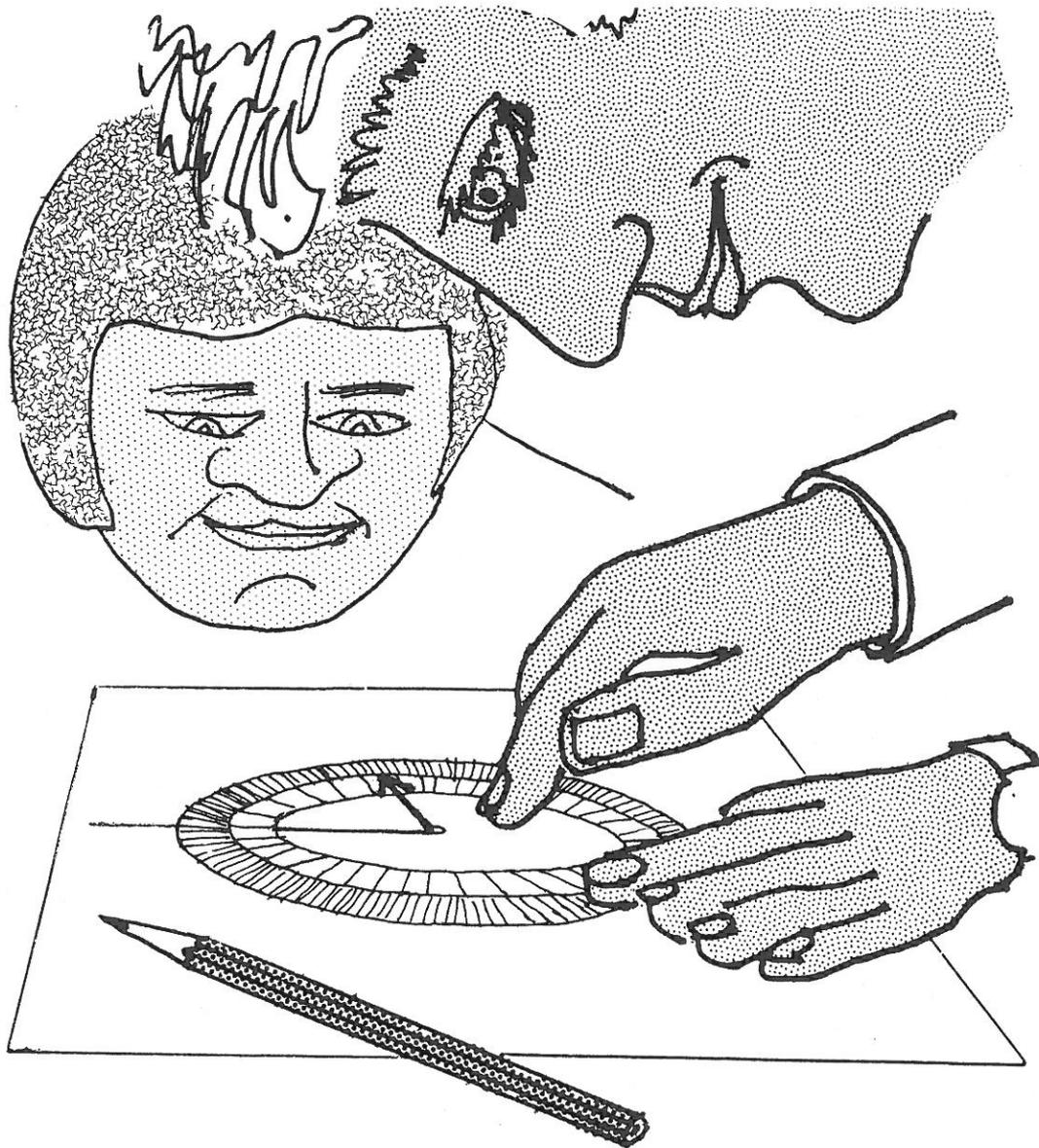
Before going any further check your answers to a and b on page 8.



~6~



~7~



Drawing Angles

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An activity for TWO people

How to draw an angle of 60°

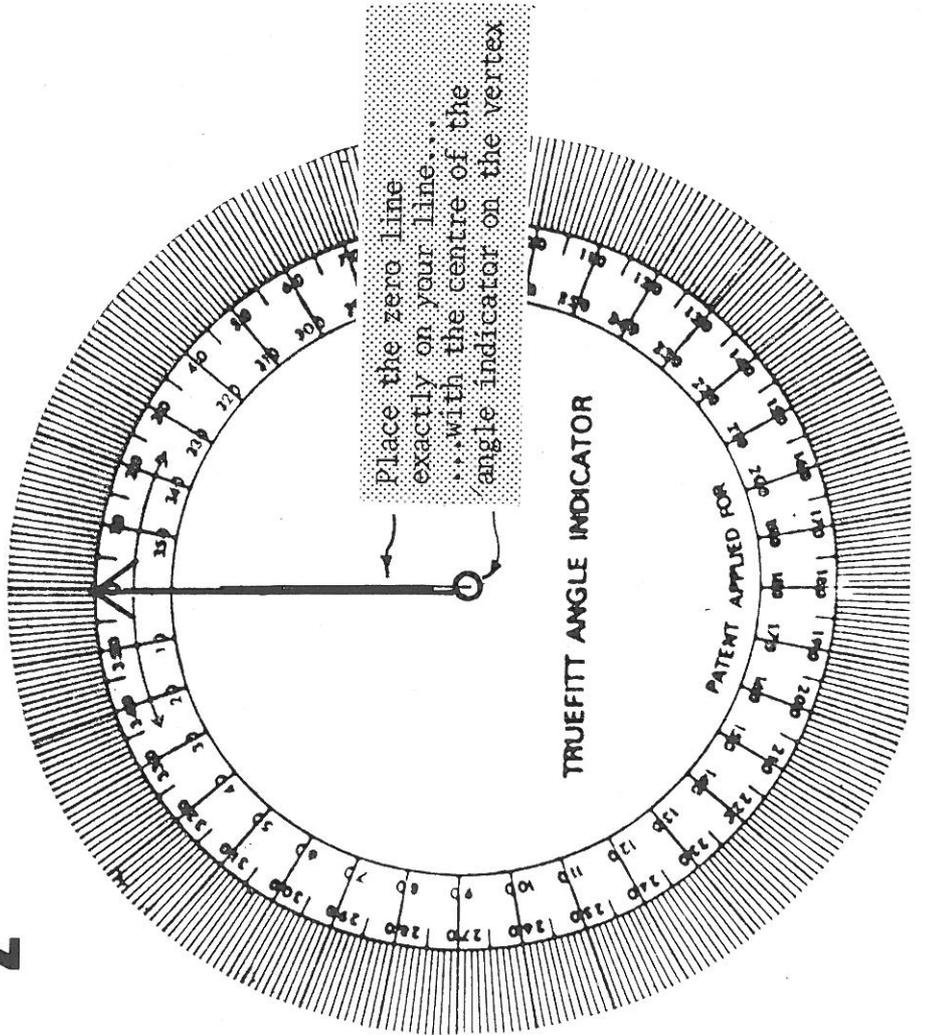
1

Draw a line
Choose one end to be
the vertex



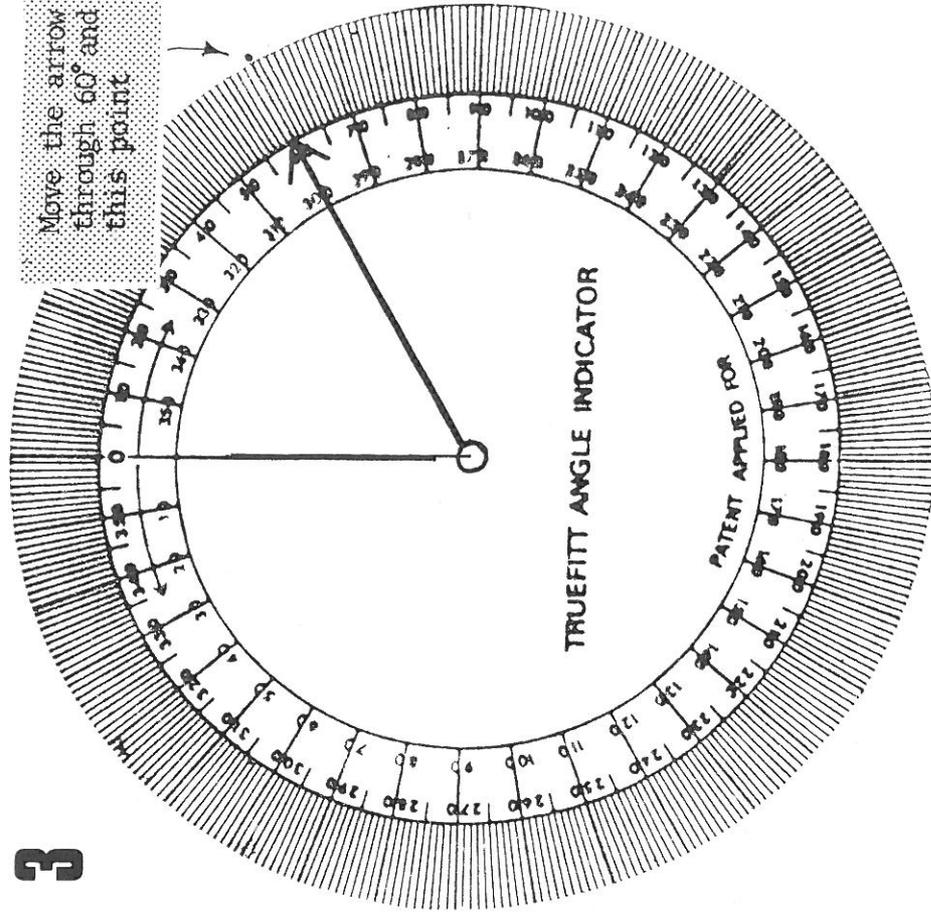
2

Place the zero line
exactly on your line...
...with the centre of the
angle indicator on the vertex



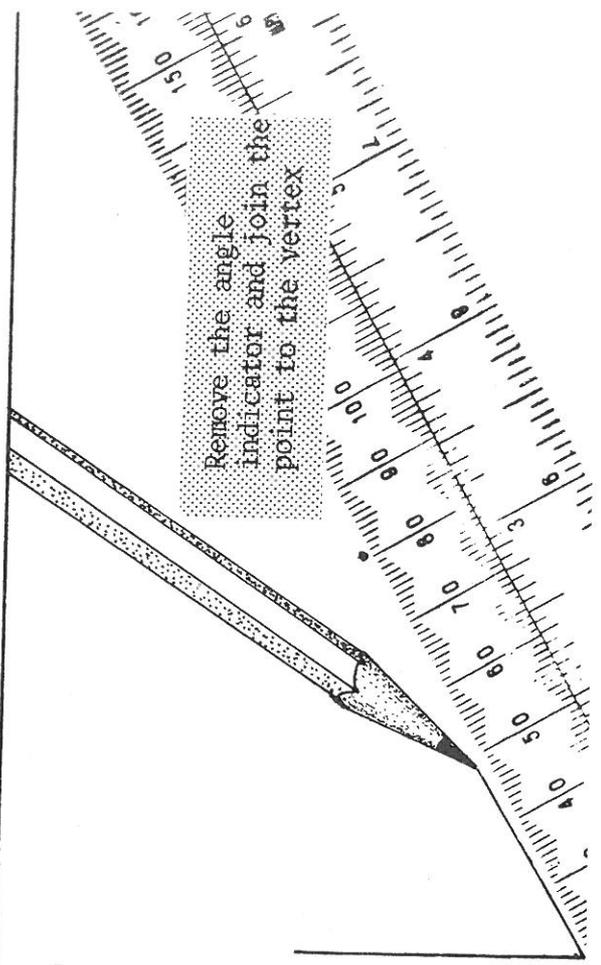
3

Move the arrow
through 60° and mark
this point



4

Remove the angle
indicator and join the
point to the vertex



Do these exercises on your own and check each other's answers by measuring:

(1) Draw angles of the following sizes:

- (a) 30° (c) 115° (e) 160°
(b) 330° (d) 245° (f) 200°

(2) On the same diagram, using the same zero line, draw angles of:

- 310° clockwise and
 50° anti clockwise.

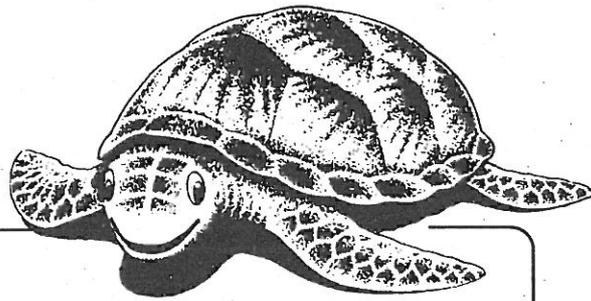
What do you notice?

(3) In question (1) what is the connection between:

- (a) and (b)
(c) and (d)
(e) and (f) ?

Logo is Amazing

You will need to use LOGO.



Using **Maze 1**

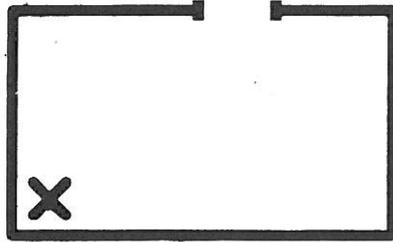
Place the transparency on the screen so that the **X** is on top of the turtle.

- ▷ Give the turtle instructions to escape from the maze using only the commands
forward, right or left.
- ▷ When you have escaped, print the screen. Use the transparency with the print-out to check your route.

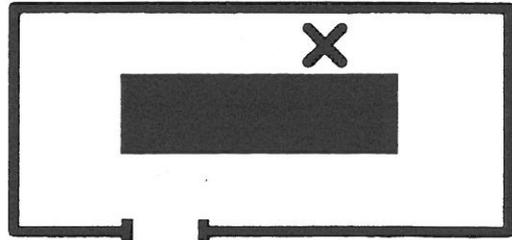
Repeat for
Maze 2,
Maze 3,
and
Maze 4.

In this envelope you will find
1 transparency.

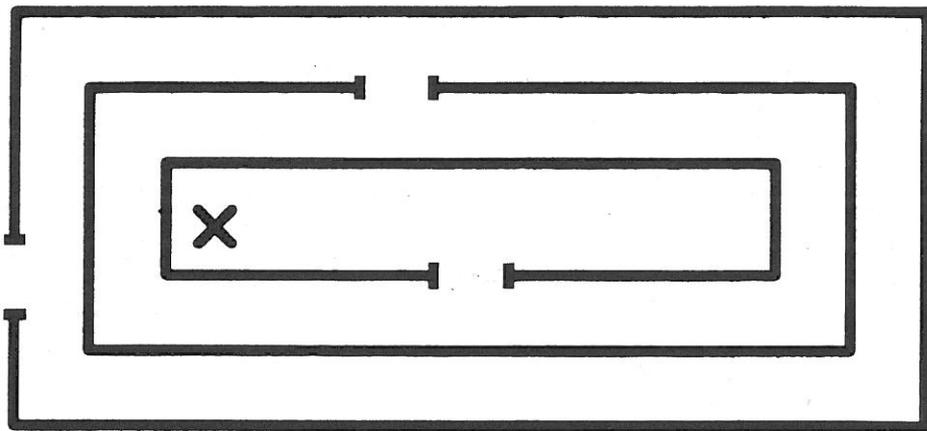
Maze 1



Maze 2



Maze 3

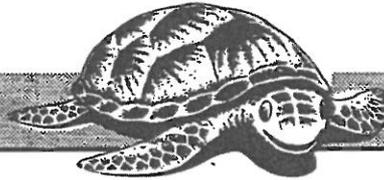


Maze 4



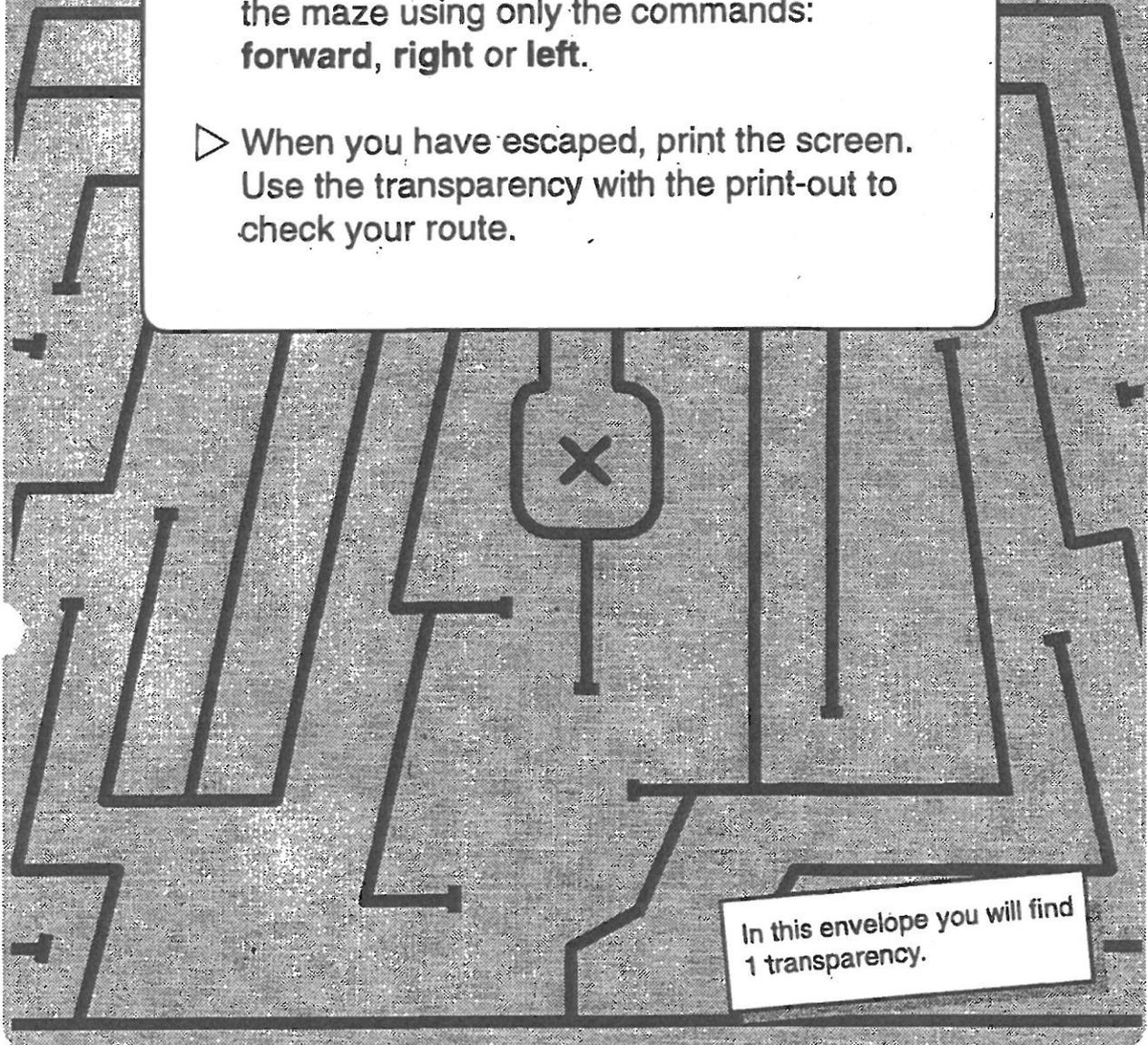
Amazing Logo

You will need to use **LOGO**.

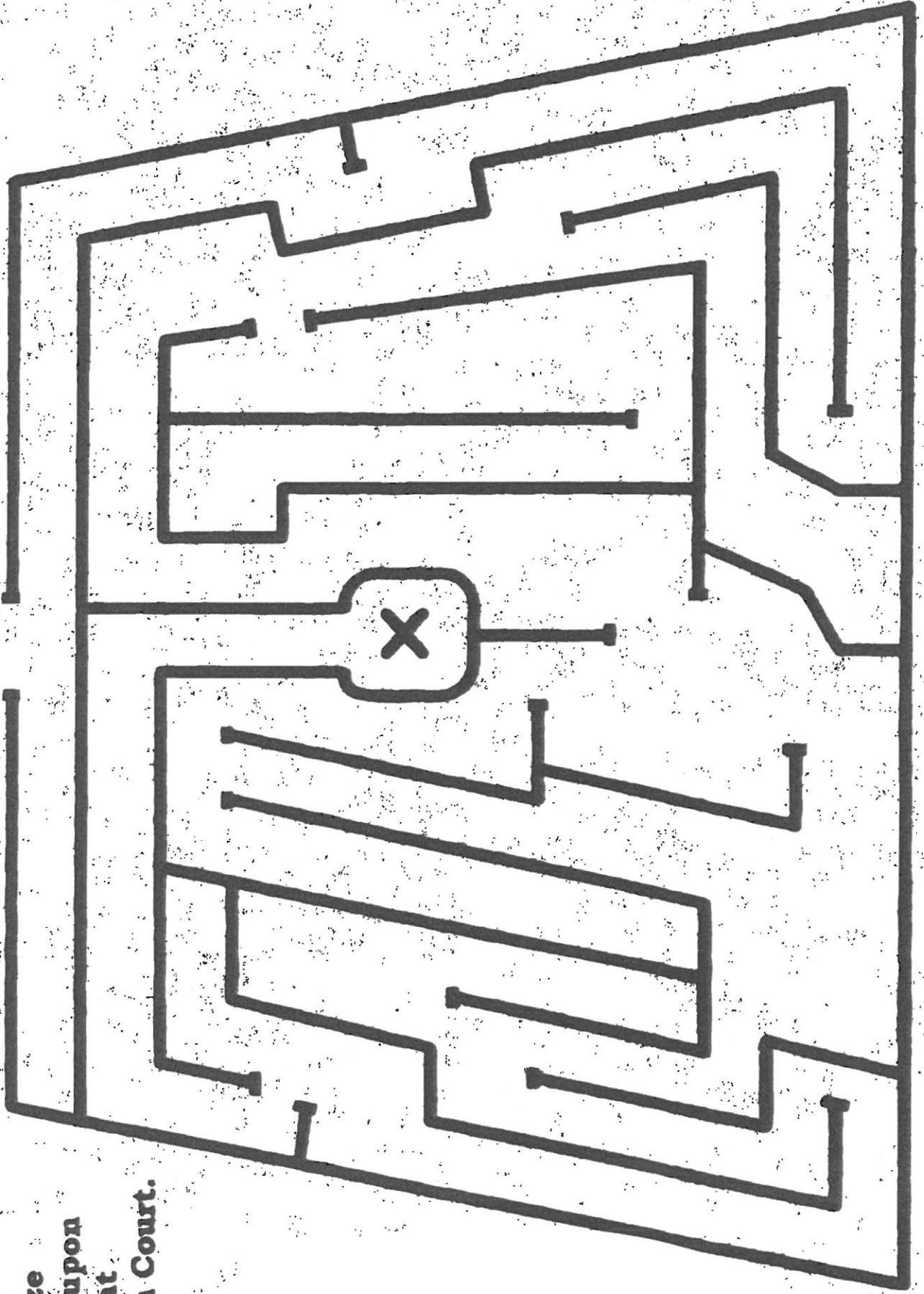


Place the transparency on the screen so that the **X** in the maze is on top of the turtle.

- ▷ Give the turtle instructions to escape from the maze using only the commands: **forward, right or left.**
- ▷ When you have escaped, print the screen. Use the transparency with the print-out to check your route.

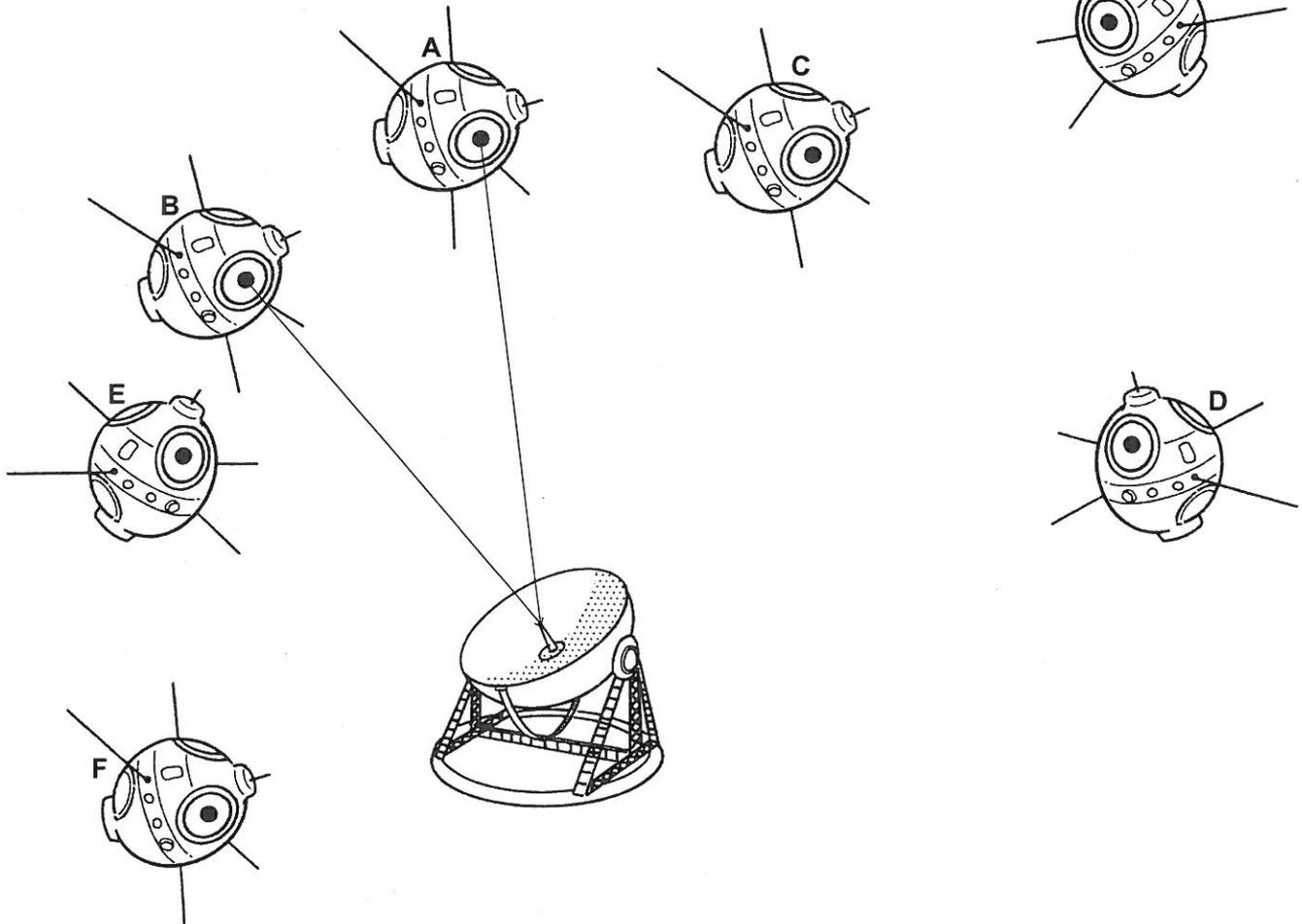


This maze is based upon the one at Hampton Court.



Satellite Signals

You will need an angle indicator.



The radio telescope receives signals from satellite **A** then turns to each of the other satellites in order. Estimate the angle, clockwise or anticlockwise, the telescope must be turned to aim at the next satellite.

Record your estimates in this table:

Turn	Estimate	Clockwise or anticlockwise	Measure
A to B			
B to C			
C to D			
D to E			
E to F			
F to G			
G to H			

Now use your angle indicator to measure these angles.

Record them in the table.

You pick up the signal if you are within 5° of the position. How many satellites did you pick up signals from?

