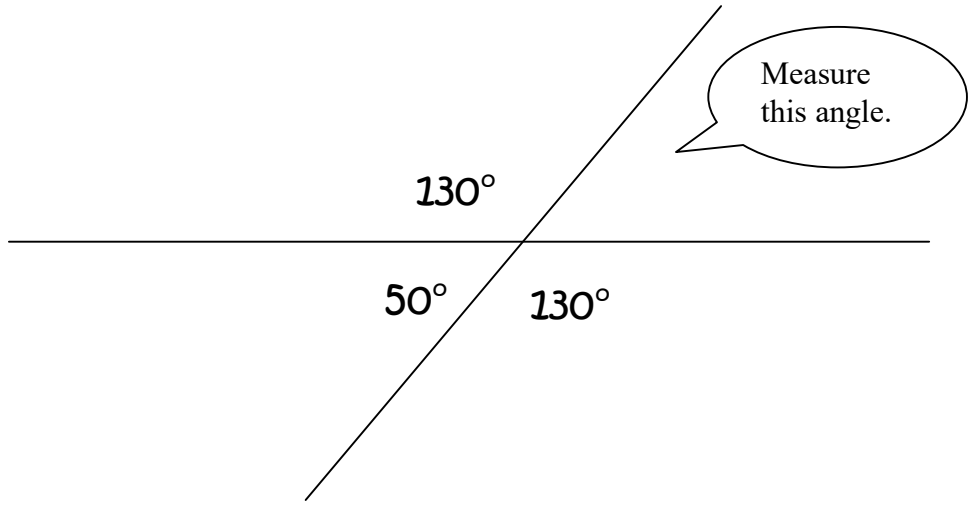
OFFICIAL USE ONLY	**An Investigation** **Space 8-6**	NAME

Angle Properties - 1

Instructions

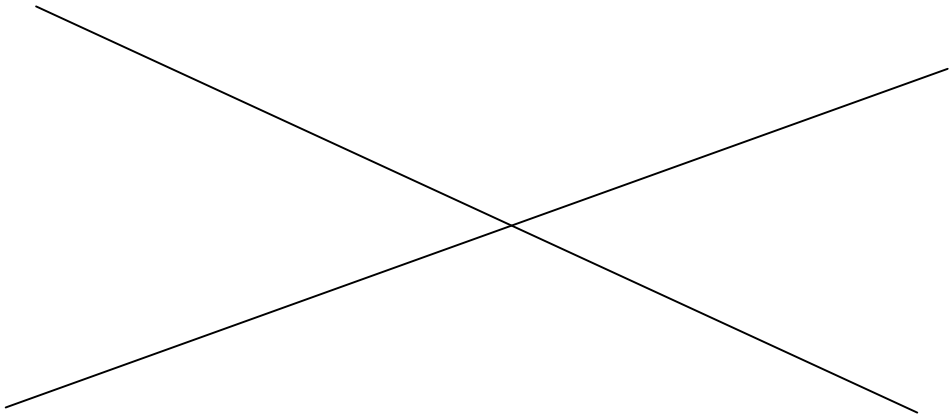
- Work alone
- Follow the questions carefully
- There are instructions on the correct use of a protractor at the back of this task.
- All solutions are to be written on this paper.

1 Measure each of the **four** angles formed when the two lines below intersect. (You will notice that three of the angles have already been measured and recorded.) Write the answers neatly on the diagram below.



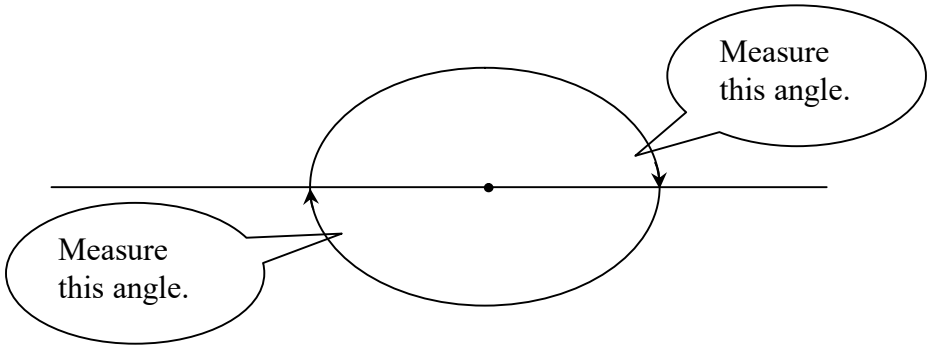
Score the maximum of **1 mark** if you measure the angle correctly within 1°. If you make a mistake or do not attempt the question, **0 marks**.

2 Measure each of the **four** angles formed when the two lines below intersect. Write the answers neatly on the diagram below.

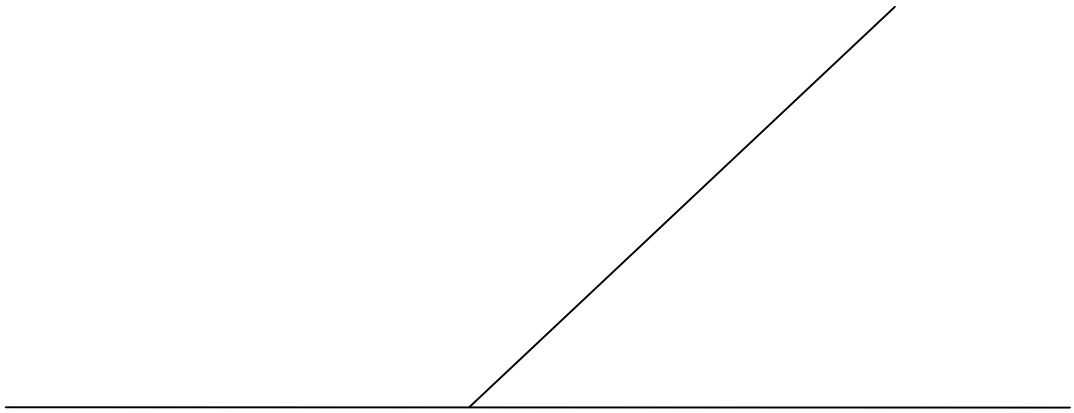
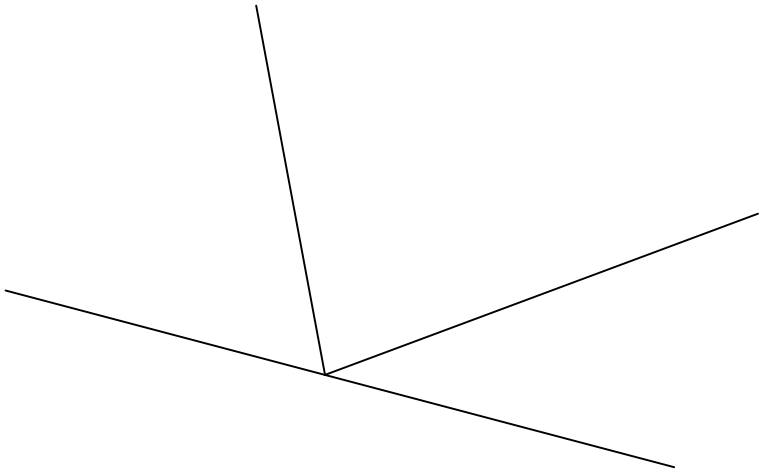
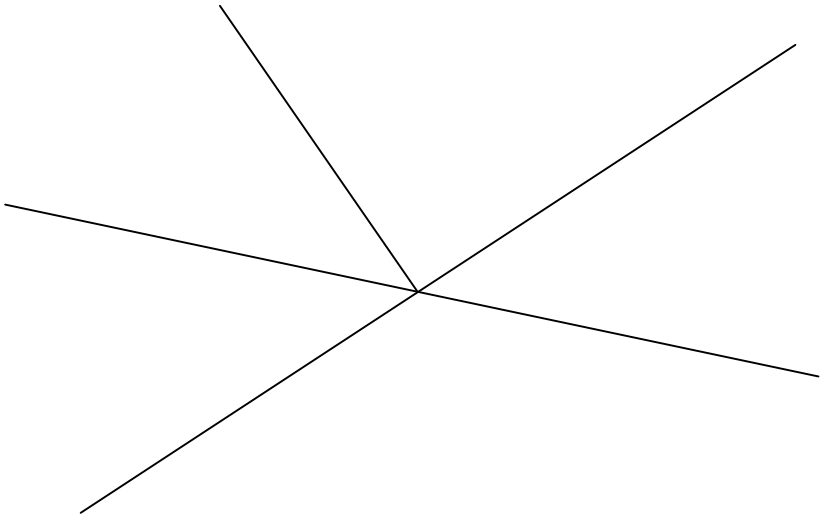


Score the maximum of **4 marks** if you measure each of the angles correctly within 1°. You score **1 mark** for **each** correct answer. If you make 4 mistakes, or do not answer the question, **0 marks**.

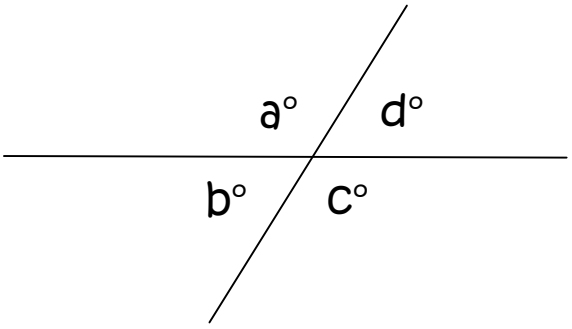
3 Measure **two** angles formed by a line. Measure both sides. Write the answers neatly on the diagram below.



Score the maximum of **2 marks** if you measure each of the angles correctly within 1°. You score **1 mark** for **each** correct answer. If you make 2 mistakes, or do not answer the question, **0 marks**.

4	Measure each of the **two adjacent** angles formed when the two lines below intersect. This is called a straight angle. Write the answers neatly on the diagram below.	
		Score the maximum of **2 marks** if you measure each of the angles correctly within 1°. You score **1 mark** for **each** correct answer. If you make 2 mistakes, or do not answer the question, **0 marks**.
5	Measure each of the **three adjacent** angles formed when the two lines below intersect. This is called a straight angle. Write the answers neatly on the diagram below.	
		Score the maximum of **3 marks** if you measure each of the angles correctly within 1°. You score **1 mark** for **each** correct answer. If you make 3 mistakes, or do not answer the question, **0 marks**.
6	Measure each of the **five** angles formed when the three lines below intersect. Write the answers neatly on the diagram below.	
		Score the maximum of **5 marks** if you measure each of the angles correctly within 1°. You score **1 mark** for **each** correct answer. If you make 5 mistakes, or do not answer the question, **0 marks**.

7 Write as many relationships (equations/number sentences) for the pronumerals in the following diagram. Two examples are given.

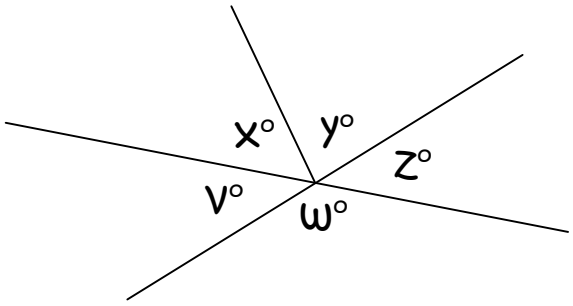


$a = c$

$a + d = 180$

Score the maximum of **4 marks** if you find 7 or more additional relationships. Score **3 marks** if you find 5 or 6 additional relationships.
Score **2 marks** if you find 3 or 4 additional relationships.
Score **1 marks** if you find 1 or 2 additional relationships.
If all your relationships are wrong or you do not answer the question, **0 marks**.

8 Write as many relationships (equations/number sentences) for the pronumerals in the following diagram.



Score the maximum of **4 marks** if you find 10 or more relationships.
Score **3 marks** if you find 7 or more relationships.
Score **2 marks** if you find 5 or more relationships.
Score **1 marks** if you find 3 or more relationships.
If all your relationships are wrong or you do not answer the question, **0 marks**.

9 Write the general rules, in words, for these results.

Note: *When two lines intersect, the angles next to each other (adjacent angles) form a straight angle. The non-adjacent angles are called vertically opposite angles.*

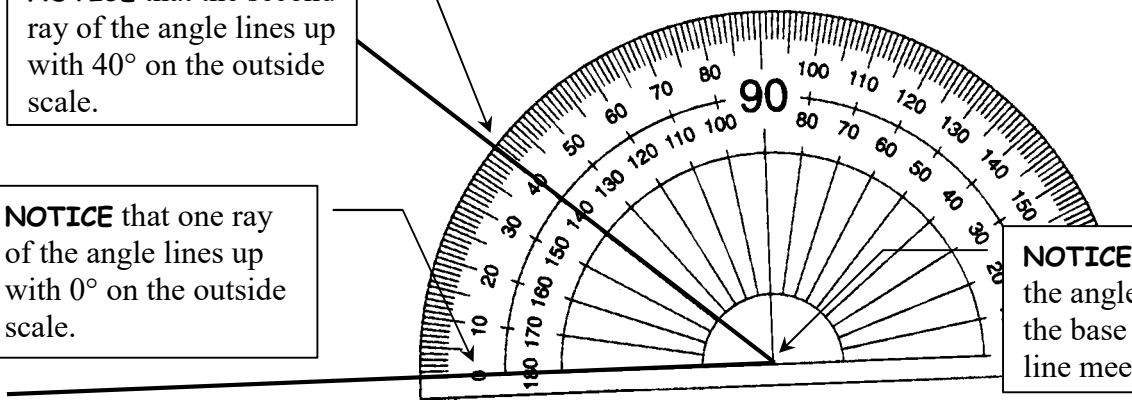
Score the maximum of **4 marks** if you state at least two rulesclearly and correctly. Score of **2 marks** if you state at least one rule clearly and correctly. You score less marks if you rules are not clear. If you make a mistake or do not attempt the question, **0 marks**.

USING A PROTRACTOR - MEASURING ANGLES

Example 1 – An acute angle of 40°

NOTICE that the second ray of the angle lines up with 40° on the outside scale.

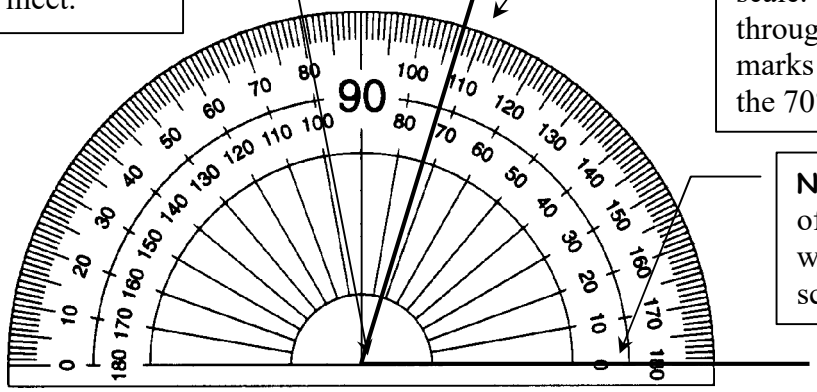
NOTICE that one ray of the angle lines up with 0° on the outside scale.



NOTICE that the **vertex** of the angle is exactly where the base line and the 90° line meet.

Example 1 – An acute angle of 73°

NOTICE that the **vertex** of the angle is exactly where the base line and the 90° line meet.



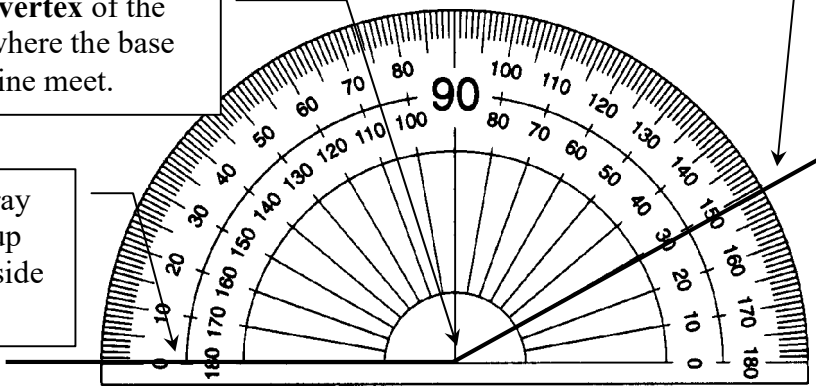
NOTICE that the second ray of the angle lines up with 73° on the inside scale. The arm passes through the mark that is 3 marks away from zero, past the 70° (also 110°)

NOTICE that one ray of the angle lines up with 0° on the inside scale.

Example 1 – An obtuse angle of 151°

NOTICE that the **vertex** of the angle is exactly where the base line and the 90° line meet.

NOTICE that one ray of the angle lines up with 0° on the outside scale.



NOTICE that the second ray of the angle lines up with 151° on the outside scale. The arm passes through the mark that is 1 mark away from zero, past the 150°