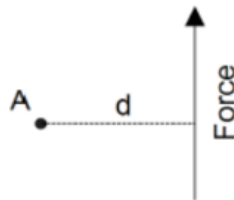


## Numerical Methods

1

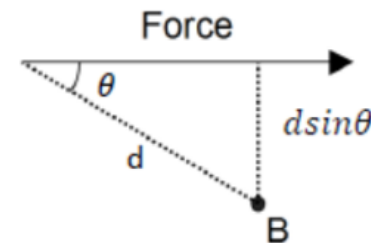
The moment of a force about point A is  
**moment = Force  $\times$  d** (Nm) (anticlockwise)

d is the perpendicular distance of the line of action of the force from A



2

The moment of a force about point B is  
**moment = Force  $\times$  d sin  $\theta$**  (Nm) (clockwise)



3

**The resultant moment** is the difference between the sum of the clockwise moments and sum of the anticlockwise moments (in the direction of the larger sum)

4

**Uniform Lamina** - (usually rectangular) – has same density throughout – Centre of mass through which the object's weight acts is the centre of the rectangle

5

**Uniform Rod** centre of mass is at the midpoint of the rod

6

**Equilibrium**

If an object is in equilibrium the **resultant force is zero** and the **total moment of all the forces is zero**

To solve problems

- Draw a diagram showing all the forces
- By taking moments about a point you can ignore the forces acting at that point ( $d = 0$ )
- Resolve the forces horizontally, vertically



# How do we use Knowledge Organisers in Mathematics?

## How can you use knowledge organisers at home to help us?

- **Retrieval Practice:** Read over a section of the knowledge organiser, cover it up and then write down everything you can remember. Repeat until you remember everything.
- **Flash Cards:** Using the Knowledge Organisers to help on one side of a piece of paper write a question, on the other side write an answer. Ask someone to test you by asking a question and seeing if you know the answer.
- **Mind Maps:** Turn the information from the knowledge organiser into a mind map. Then reread the mind map and on a piece of paper half the size try and recreate the key phrases of the mind map from memory.
- **Sketch it:** Draw an image to represent each fact; this can be done in isolation or as part of the mind map/flash card.
- **Teach it:** Teach someone the information on your knowledge organiser, let them ask you questions and see if you know the answers.

## How will we use knowledge organisers in Mathematics?

Knowledge organisers will be used before I complete a Learning Check or Common Assessment. I will spend part of the lesson looking over each of the key topics of the half term before completing the Learning Check or Common Assessment.

I will also use these at home to complete my own independent learning and revision of these key topics.

GLUE HERE