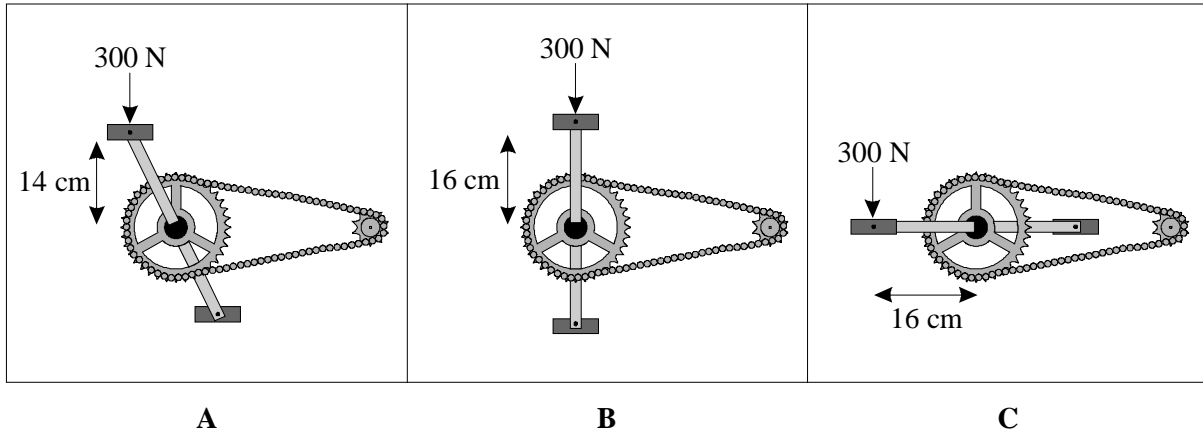# More Moments Questions

Name ………………………

1. For part of the ride the cyclist pushed on the pedals with a constant vertical force of 300 N. The simplified diagrams show the pedals in three different positions.

A	**B**	**C**

(i) Which position, **A**, **B**, or **C**, gives the largest moment on the pedal?

....

(1)

(ii) Use the following equation to calculate, in Newton metres, the size of the largest moment on the pedal.

$$\text{moment} = \text{force} \times \text{perpendicular distance from pivot}$$

....

....

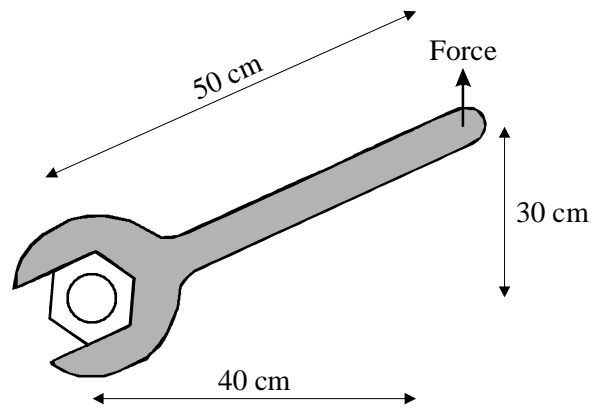Moment = ... Nm

(2)
(Total 3 marks)

2. A metre ruler is balanced on a pivot under its 20cm mark by placing a 1N piece of iron over the 5cm mark.

a) Draw a diagram; label the force from the piece of iron and the force from the weight of the ruler.

b) Calculate the weight of the ruler (in N).

(Total 4 marks)

3. The diagram shows a spanner being used to undo a tight nut.

Force

50 cm
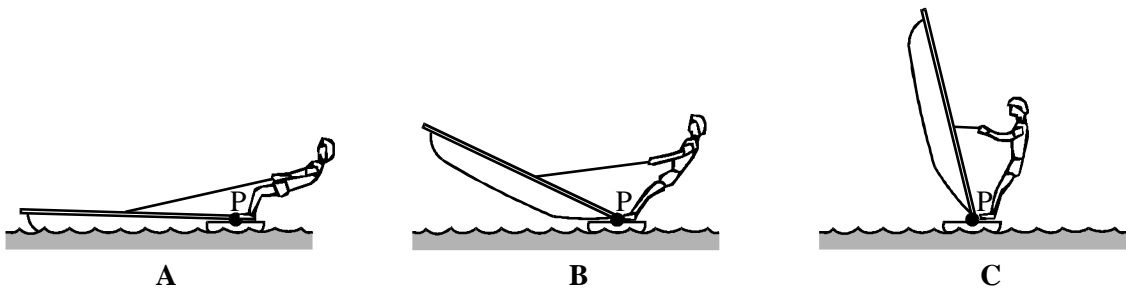
30 cm

40 cm

The nut was tightened using a moment of 120 newton metres.

Use the following equation to calculate the force needed to undo the nut. Show clearly how you work out your answer.

moment = force × perpendicular distance from pivot

....

....

Force = ... N

(Total 2 marks)

4. (a) The diagrams show a windsurfer pulling up the sail of a sailboard. The mast pivots at point P.

P

P

P

A   **B**   **C**

(a) On each diagram, add an arrow to show the force of gravity acting on the sail.

(b) On each diagram, add an arrow to show the force of the rope pulling on the sail.

(c) In which position, **A**, **B** or **C** must the windsurfer pull with the largest force?

....

(Total 3 marks)