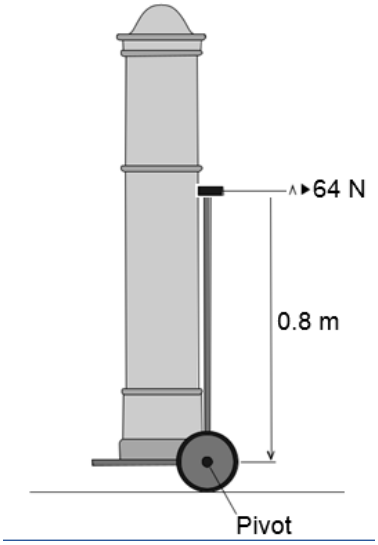
MOMENT 2

Q1 The diagram shows a clock on a trolley.

The trolley is being used to move the clock.



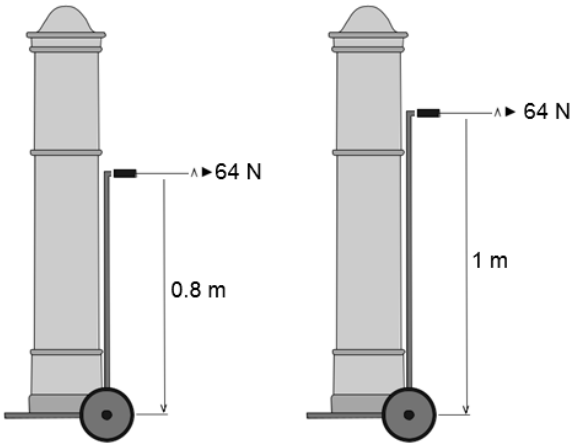
(a) Calculate the moment of the 64 N force about the pivot.

Use the correct equation from the Physics Equations Sheet.

Moment of the force = _____ Nm

(2 marks)

(b) The design of the trolley is now changed to make it taller.



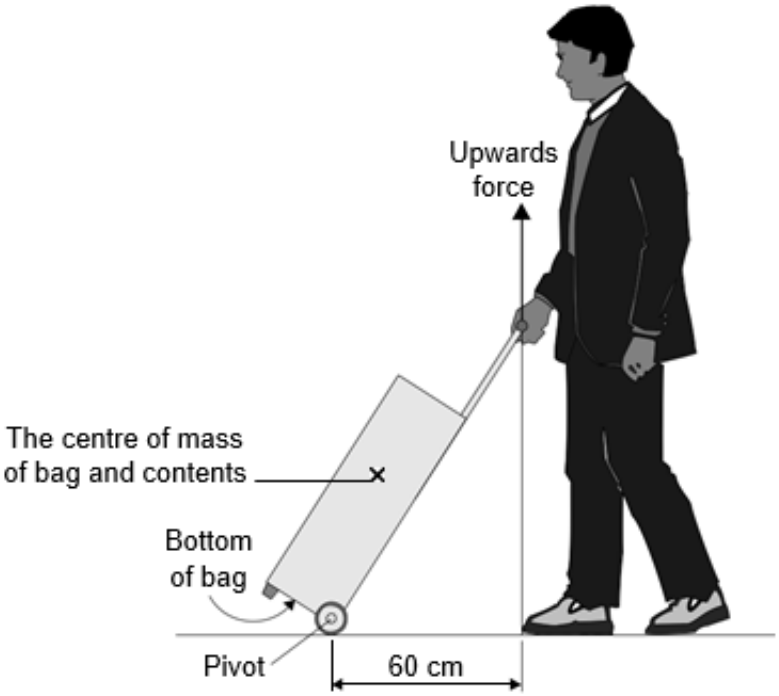
How does making the trolley taller affect the moment produced by the 64 N force about the pivot?

_____

_____

(1 mark)

Q2. The diagram shows a man standing in an airport queue with his wheeled bag.



(a) The man applies an upward force to the handle of his bag to stop the bag from falling.

The moment of this force about the pivot is 36 Nm.

Calculate the upward force the man applies to the handle of his bag.

Use the correct equation from the Physics Equations Sheet.

Force = _____ N

(2 marks)

(b) When the man lets go of the bag handle, the bag falls and hits the floor.

Explain why.

(2 marks)

(c) During his holiday the man visits the Foucault Pendulum in Paris, France.

The pendulum makes 10 complete swings every 160 seconds.

Calculate the frequency of the pendulum and give the unit.

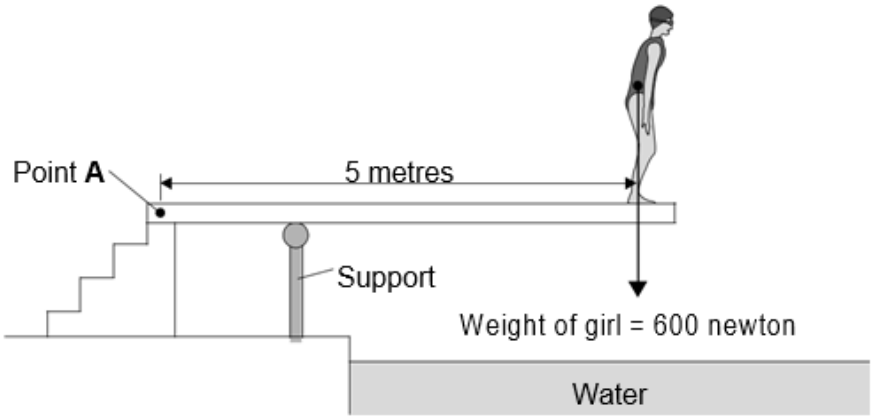
Use the correct equation from the Physics Equations Sheet.

Frequency = _____

(3 mark

Q3 Figure 2 shows a girl standing on a diving board

Figure 2



(a)Calculate the moment of the girl's weight about Point A.

Use the correct equation from the Physics Equations Sheet.

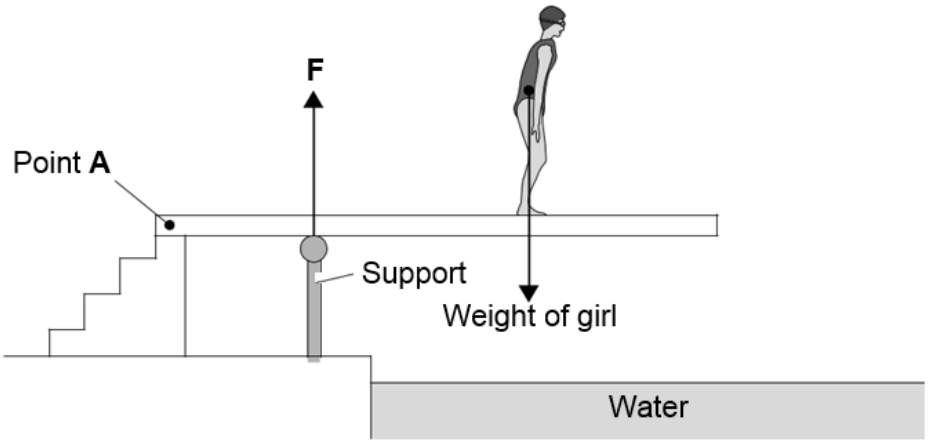
Moment = _____ newton metres

[2 marks]

(b) Figure 3 shows the girl standing at a different place on the diving board.

The support provides an upward force F to keep the diving board balanced.

Figure 3



Complete the following sentence.

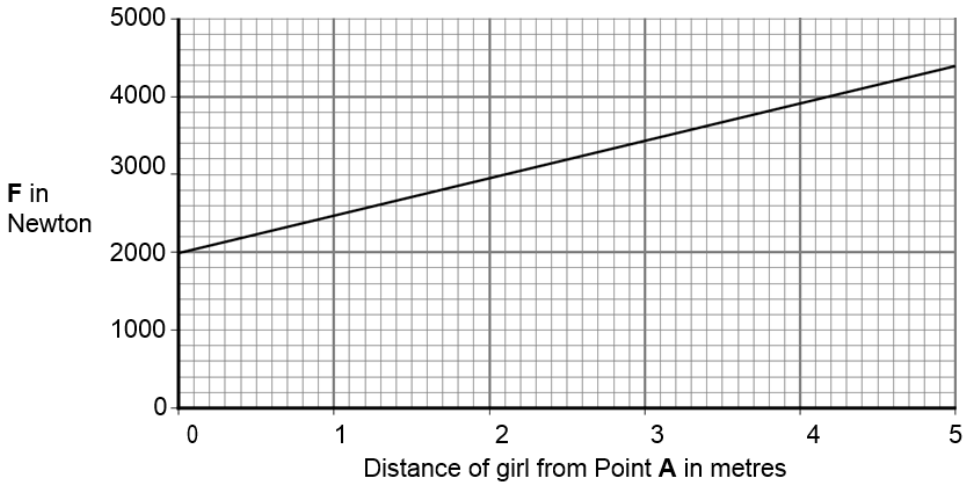
The diving board is not turning. The total clockwise moment is balanced by the total

_____

[1 mark]

(c) Figure 4 shows how the upward force F varies with the distance of the girl from Point A.

Figure 4



Use Figure 4 to determine the upward force F when the girl is standing at a distance of 3 metres from point A.

Upward force F = _____ newtons

(c) (ii) What conclusion should be made from Figure 4?

_____

_____

_____

[1 mark]

Q4 (a) Use the correct answer from the box to complete the sentence.

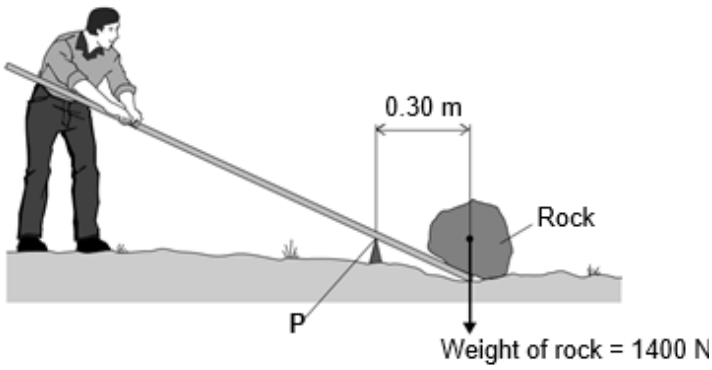
balancing	**stretching**	**turning**

A moment is the _____ effect of a force.

[1 mark]

(b) Figure 1 shows how a lever can be used to lift a heavy rock.

Figure 1



Calculate the moment of the weight of the rock about point P.

Use the correct equation from the Physics Equations Sheet.

_____

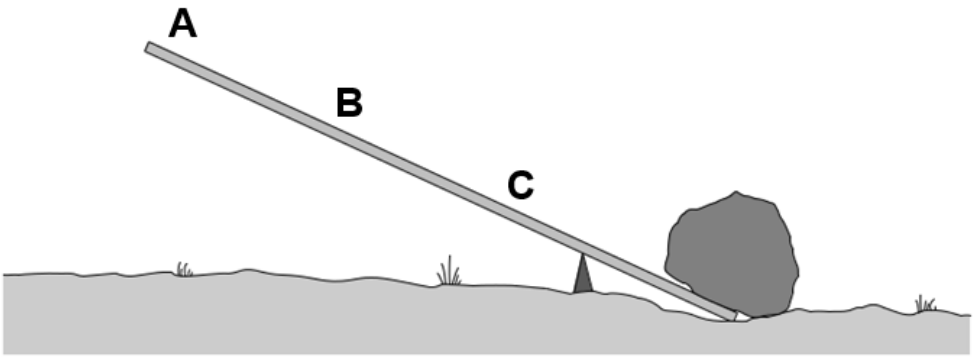
_____

Moment = _____ newton metres

[2 marks]

(c) Figure 2 shows three positions on the lever, A, B and C, where the person could have applied a force to lift the rock.

Figure 2



Draw a ring around the correct answer.

A **B** **C**

Give the reason for your answer.

_____

_____

[2 marks]

Total: 20 marks