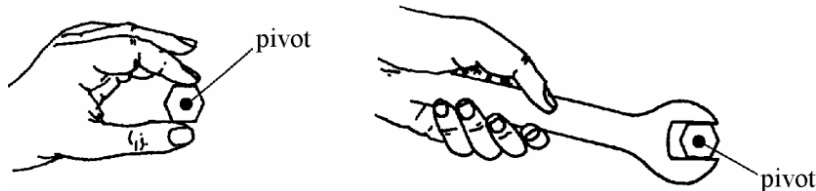


Moments

1. A spanner makes it a lot easier to loosen a bolt.



You cannot usually loosen a bolt with your fingers. It is easier with a spanner.

Choose words from this list to complete the sentences below.

- Lever piston pivot pulley turning effect**

The spanner is a simple

You use it to produce a bigger on the bolt.

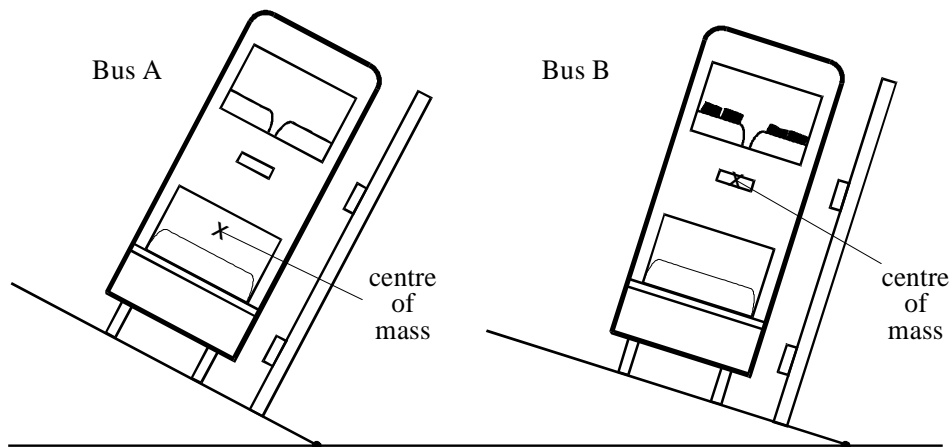
A longer spanner works better.

This is because there is a bigger distance between your force and the

(Total 3 marks)

2. The diagram shows two buses. Bus A is empty. Bus B contains bags of sand upstairs to represent passengers.

Each bus has been tilted as far as it can without falling over.



(a) Each bus will topple over if it is tilted any further.

Explain, in as much detail as you can, why this will happen.

(You can draw on one of the diagrams as part of your answer if you want to.)

.....

.....

(2)

Unit P3, P3.2.2

- (b) What difference does it make to the stability of the bus when the upper deck is full of “passengers”? Explain your answer as fully as you can.

.....

(3)

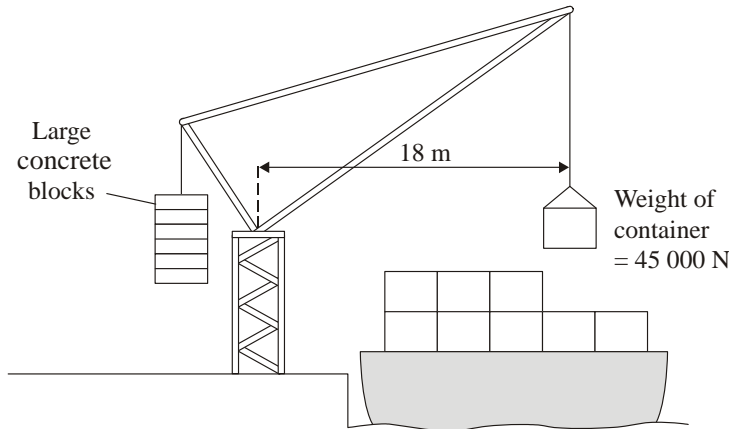
- (c) Why are the bags of sand in bus B only put upstairs?

.....

(1)

(Total 6 marks)

3. The diagram shows a crane which is loading containers onto a ship.



- (a) Use the equation in the box to calculate the moment of the container which is being loaded.

$\text{moment} = \text{force} \times \text{perpendicular distance from the line of action of the force to the axis of rotation}$

Show clearly how you work out your answer and give the unit.

.....

Moment of the container =

(3)

- (b) Suggest and explain the purpose of the large concrete blocks.

.....

(3)

(Total 6 marks)