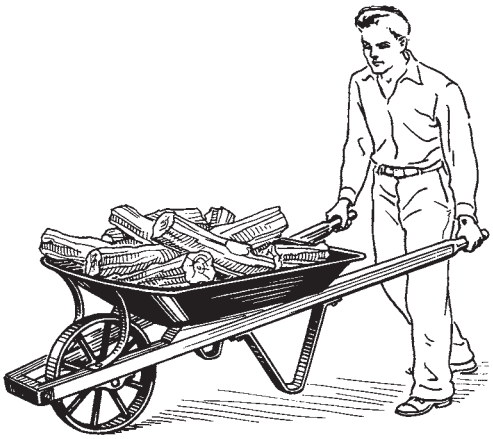
5 A man uses a wheelbarrow to carry some logs along a flat path, as shown.



©http://commons.wikimedia.org/wiki/file:wheelbarrow_%28PSF%29.png

(a) He pushes with a horizontal force of 140 N and the wheelbarrow moves 39 m.

(i) State the relationship between work done, force and distance moved.

(1)

(ii) Calculate the work done moving the wheelbarrow.

(2)

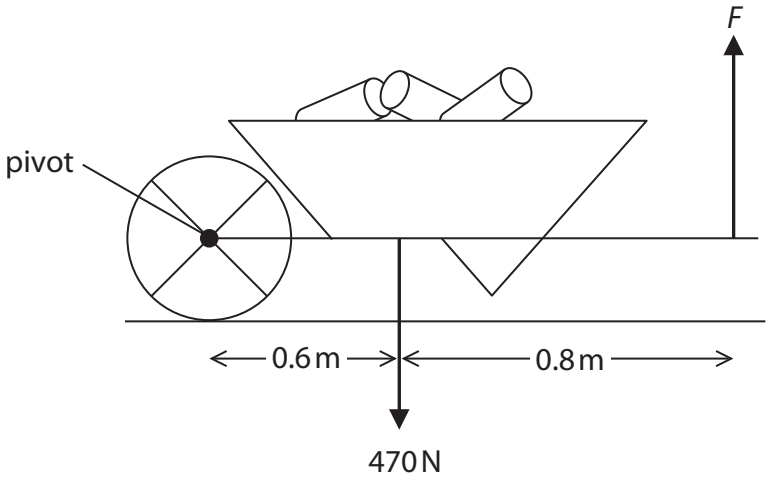
work done = ... J

(iii) State how much energy is transferred to the wheelbarrow.

(1)

energy transferred = ... J

(b) The man stops and holds the wheelbarrow horizontally, as shown.



The man exerts a total upward force of *F* N.

The weight of the loaded wheelbarrow is 470 N.

(i) Mark X on the diagram to indicate the centre of gravity of the loaded wheelbarrow.

(1)

(ii) State the equation linking moment, force and perpendicular distance from the pivot.

(1)

(iii) Calculate the force *F*.

(4)

force *F* = ... N

(Total for Question 5 = 10 marks)