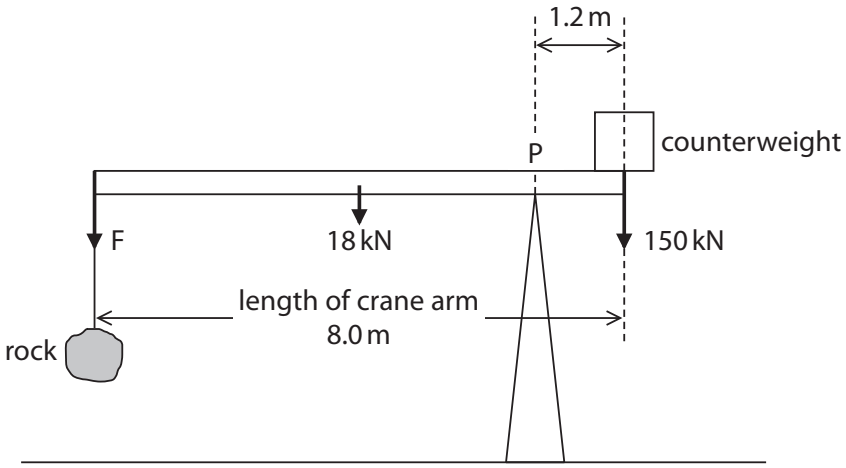
8 The simplified diagram shows a crane being used to lift a large rock.

The diagram is not to scale.



(a) The table gives information about the forces acting on the uniform crane arm.

Complete the table by giving the missing information.

(1)

Force	Name of force
F	weight of rock
150 kN	weight of counterweight
18 kN	

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

(1)

(ii) Calculate the clockwise moment of the weight of the counterweight about the pivot, P.

(2)

moment = ... N m

(c) (i) State the principle of moments.

(1)

.....

.....

(ii) Calculate the weight of the rock.

(3)

weight = ... N

(Total for Question 8 = 8 marks)