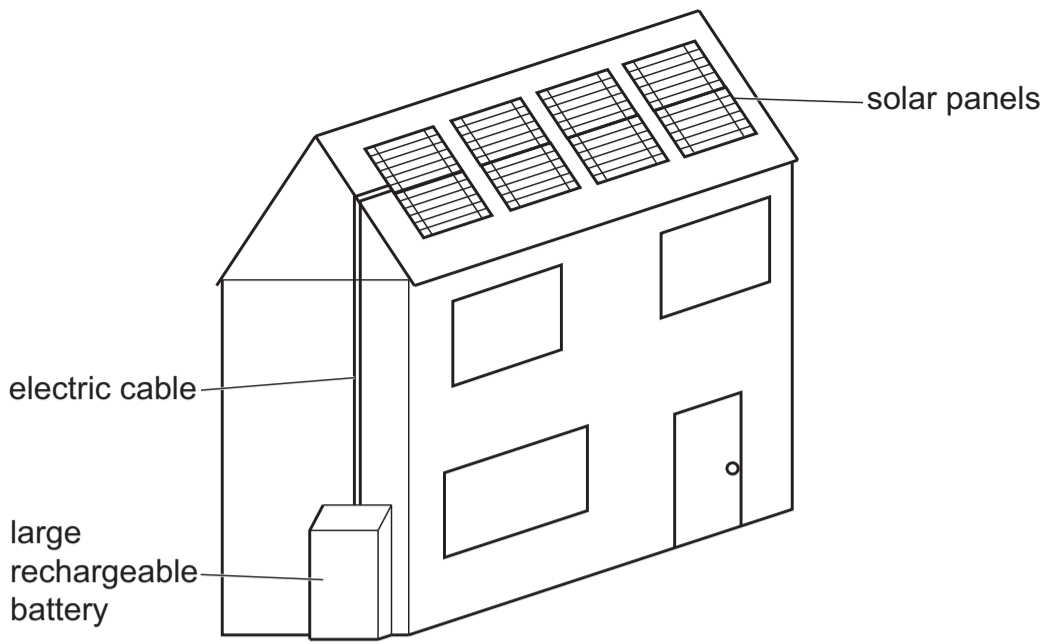


3 Fig. 3.1 shows black solar panels installed on the roof of a house and a large rechargeable battery.



**Fig. 3.1** (not to scale)

The solar panels produce electricity and give a maximum power output of 3.5kW. The efficiency of the solar panels is 16%.

(a) State and explain **one** advantage of using black solar panels.

.....  
.....  
..... [2]

(b) Calculate the power received by the solar panels from the Sun.

power = ..... [3]

(c) The solar panels produce direct current (d.c.) and household appliances use alternating current (a.c.).

State the difference between alternating current and direct current.

.....  
..... [1]

(d) Suggest **one** advantage of storing energy in the large rechargeable battery.

.....  
..... [1]

(e) Calculate the charge that flows into the battery when there is a current of 4.0A for 2.0 hours.

charge = ..... [3]