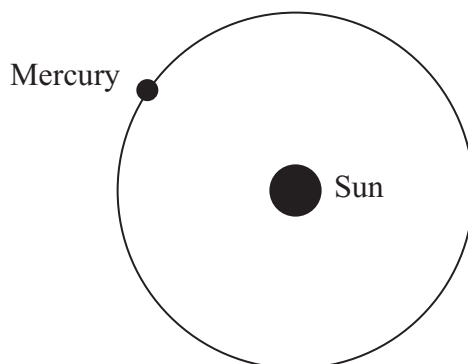**4** The planet Mercury orbits the Sun.

(a) Mercury takes 88 days to orbit the Sun.

The average radius of the orbit is 58 million km.

Calculate the average orbital speed of Mercury.

Give the unit.

(3)

Average orbital speed = ... Unit ....

(b) Comets also orbit the Sun.

(i) Name the force that causes comets and planets to orbit the Sun.

(1)

....

(ii) Add to the diagram opposite to show the orbit of a typical comet.

(1)

(iii) The speed of a comet changes during its orbit.

On the orbit you have drawn, label with the letter **X** the position where the comet travels at its **fastest** speed.

(1)

(iv) Explain why the comet travels fastest at point **X**.

(2)

....

....

....

....

....

....

(Total for Question 4 = 8 marks)