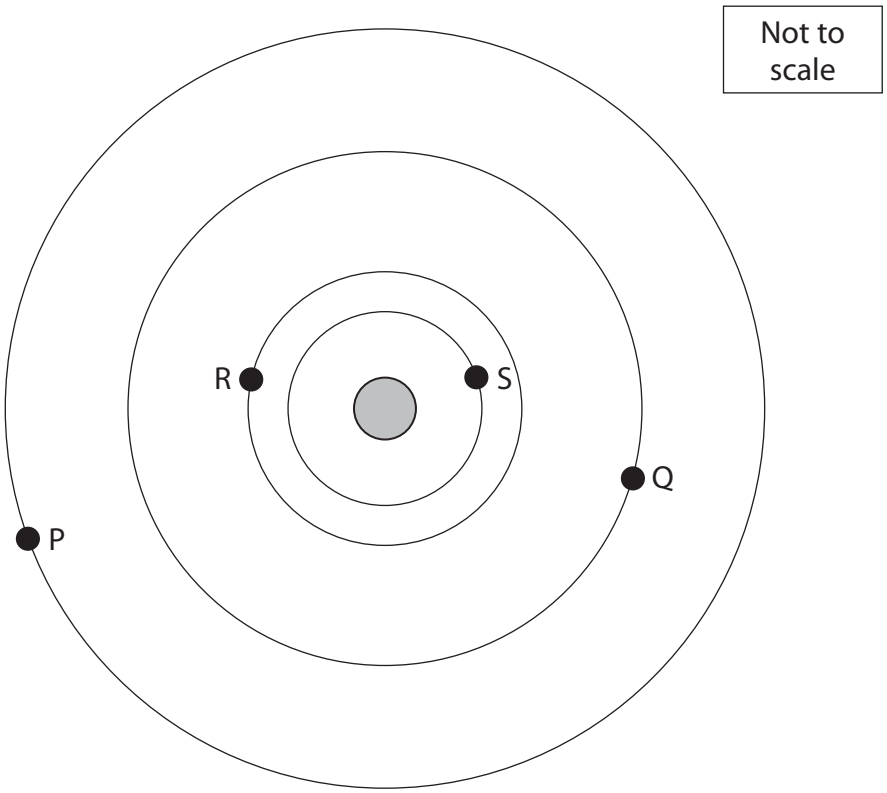
3 The diagram shows four planets, P, Q, R and S, orbiting a star.



(a) This combination of planets and a star is most like

(1)

☒ **A** a galaxy

☒ **B** the Milky Way

☒ **C** the Solar System

☒ **D** the universe

(b) Planet Q has a moon.

On the diagram, draw the orbit of this moon.

(1)

(c) On the diagram, draw the orbit of a comet.

(2)

(d) Planets nearer to the star take less time to orbit the star.

(i) Suggest why.

(1)

.....

.....

(ii) Planet P makes one complete orbit.

During this time

(1)

☒ **A** planet R makes more orbits than S

☒ **B** planet R makes fewer orbits than Q

☒ **C** planet S makes more orbits than P

☒ **D** planet Q makes fewer orbits than P

(e) As the planets orbit the star, the distances between the planets change.

Planet **P** is 200 million km from the star and planet **R** is 50 million km from the star.

(i) Calculate the maximum distance between planet P and planet R.

(1)

maximum distance = ... million km

(ii) Calculate the minimum distance between planet P and planet R.

(1)

minimum distance = ... million km

(Total for Question 3 = 8 marks)