5 The table gives data on the Solar System.

Name of planet	Average distance from the Sun in millions of kilometres	Average orbital speed in kilometres per second
Mercury	60	48
Venus	108	35
Earth	150	30
Mars	228	24
Jupiter	778	13
Saturn	1430	9.6
Uranus	2860	6.8

5 (a) A student studies this data and comes to the following conclusion.

> For the planets in the table, the average orbital speed is very nearly inversely proportional to the planet's average distance from the Sun.

5 (a) (i) This conclusion is **not** correct.

Use the data for Saturn and Uranus to explain how the student's conclusion is not correct.

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(2 marks)

5 (a) (ii) For all the listed planets, write a correct conclusion for the connection between the average distance from the Sun and the orbital speed.

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(2 marks)

5 (b) The student knows the following:

The planets all move in ellipses (slightly squashed circles).

What is the connection between this statement and the headings in the table?

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(2 marks)

6

Turn over for the next question