Standard Form - Real World Problems

Name:	Class:	Date:

Mark	/ 5	%

1) Use the information in the table to answer the questions below [1]

Planet	Image	Mass (kg)	Distance to Sun (km)
Jupiter		1.9×10^{27}	7.78×10^{8}
Mercury		3.3×10^{23}	5.79×10^{7}
Saturn		5.69×10^{26}	1.43×10^{9}
Venus		4.87×10^{24}	1.08×10^{8}

a) Which planet is heaviest?

b) Which planet is nearest the sun?

2) Mars is approximately 227, 939, 921 km from Earth. [1]
How many buses of length 6m could be placed end to end to reach Mars from Earth?

Give your answer in **standard form rounded to 3 significant figures**.

3) Earth has a diameter of 12742000 metres. Calculate the volume of Earth in m^3, **giving your answer in standard form to 3 decimal places**.
Note that the formula for volume of a sphere is $V = \frac{4}{3}\pi r^3$ where r is radius.

[1]

4) Jupiter is approximately 7.7833026×10^8kilometres from the Sun. Calculate the time is would take light to travel from the Sun to Jupiter, **giving your answer to the nearest minute**.
Note that the speed of light is 2.99792458×10^8 metres per second.

[1]

5) Mars has a mass of 6.417×10^{23}kg and a volume of 1.632×10^{20}m^3. [1]
Calculate the density of Mars, giving your answer to 3 decimal places.
Note that density is found by dividing mass (g) by volume (cm^3).

Solutions for the assessment Standard Form - Real World Problems

1) a) Jupiter, b) Mercury

2) 3.8×10^{10}

3) $1.083 \times 10^{21}\ m^3$

4) 43 minutes

5) $3.932\ g/cm^3$