1 (a) Write 7.97×10^{-6} as an ordinary number.

.....

(1)

(b) Work out the value of $(2.52 \times 10^{5}) \div (4 \times 10^{-3})$
Give your answer in standard form.

.....

(2)

2 The table shows some information about eight planets.

Planet	Distance from Earth (km)	Mass (kg)
Earth	0	5.97×10^{24}
Jupiter	6.29×10^{8}	1.898×10^{27}
Mars	7.83×10^{7}	6.42×10^{23}
Mercury	9.17×10^{7}	3.302×10^{23}
Neptune	4.35×10^{9}	1.024×10^{26}
Saturn	1.28×10^{9}	5.68×10^{26}
Uranus	2.72×10^{9}	8.683×10^{25}
Venus	4.14×10^{7}	4.869×10^{24}

(a) Write down the name of the planet with the greatest mass.

.....

(1)

(b) Find the difference between the mass of Venus and the mass of Mercury.

..... kg

(1)

Nishat says that Neptune is over a hundred times further away from Earth than Venus is.

(c) Is Nishat right?
You must show how you get your answer.

(2)

3 Work out $(13.8 \times 10^{7}) \times (5.4 \times 10^{-12})$
Give your answer as an ordinary number.

.....

(2)

4 $T = \sqrt{\frac{w}{d^3}}$

$w = 5.6 \times 10^{-5}$
$d = 1.4 \times 10^{-4}$

(a) Work out the value of T.
Give your answer in standard form correct to 3 significant figures.

$T =$ .....

(2)

w is increased by 10%
d is increased by 5%

Lottie says,

"The value of T will increase because both w and d are increased."

(b) Lottie is wrong.
Explain why.

.....

.....

(2)

5 (a) Work out an estimate for the value of $\sqrt{63.5 \times 101.7}$

.....

(2)

$(2.3)^6 = 148$ correct to 3 significant figures.

(b) Find the value of $(0.23)^6$ correct to 3 significant figures.

.....

(1)

(c) Find the value of 5^{-2}

.....

(1)

6 (a) Write 0.00562 in standard form.

.....

(1)

(b) Write 1.452×10^3 as an ordinary number.

.....

(1)

7 Work out $(3.42 \times 10^{-7}) \div (7.5 \times 10^{-6})$
Give your answer in standard form.

.....

(2)

8 (a) Write 32 460 000 in standard form.

.....

(1)

(b) Write 4.96×10^{-3} as an ordinary number.

.....

(1)

Asma was asked to compare the following two numbers.

$$A = 6.212 \times 10^{8} \quad \text{and} \quad B = 4.73 \times 10^{9}$$

She says,

"6.212 is bigger than 4.73 so A is bigger than B."

(c) Is Asma correct?
You must give a reason for your answer.

.....

.....

.....

(1)

9 Write these numbers in order of size.
Start with the smallest number.

6.72×10^5 67.2×10^{-4} 672×10^4 $0.000\,672$

.....

(2)

10 (a) Write 4.5×10^5 as an ordinary number.

.....

(1)

(b) Write 0.007 in standard form.

.....

(1)

(c) Work out $4.2 \times 10^3 + 5.3 \times 10^2$
Give your answer in standard form.

.....

(2)