Firrhill High School

Mathematics Department

Level 5

Assessment Questions

Scientific Notation using a Calculator

S.Payne July 2010

1. 2009 Paper 2 Q.1

KU	RE
3	

One atom of gold weighs $3{\cdot}27 \times 10^{-22}$ grams.

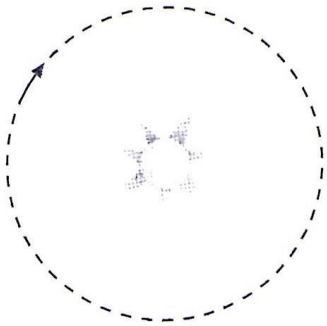
How many atoms will there be in one kilogram of gold?

Give your answer **in scientific notation correct to 2 significant figures.**

2. 2006 Paper 2 Q.1

KU	RE
3	

The orbit of a planet around a star is circular.



The radius of the orbit is $4{\cdot}96 \times 10^{7}$ kilometres.

Calculate the circumference of the orbit.

Give your answer **in scientific notation.**

3. 2005 Paper 2 Q.1

KU	RE
3	

$$E = mc^2.$$

Find the value of E when $m = 3{\cdot}6 \times 10^{-2}$ and $c = 3 \times 10^{8}$.

Give your answer **in scientific notation.**

4. 2004 Paper 2 Q.1

KU	RE
4	

Radio signals travel at a speed of 3×10^{8} metres per second.

A radio signal from Earth to a space probe takes 8 hours.

What is the distance from Earth to the probe?

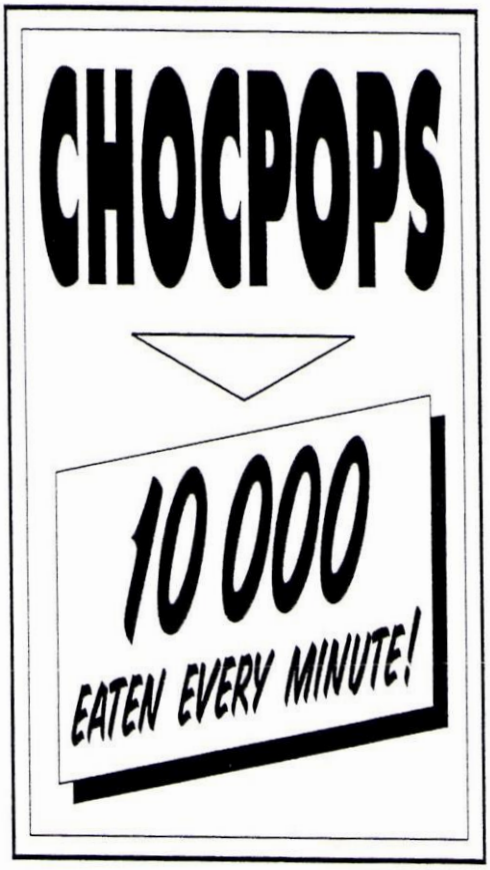
Give your answer **in scientific notation.**

S.

5. 2002 Paper 2 Q.1

	KU	RE
A spider weighs approximately $19{\cdot}06 \times 10^{-5}$ kilograms. A humming bird is 18 times heavier. Calculate the weight of the humming bird. Give your answer **in scientific notation**.	2	

6. 2001 Paper 2 Q.1



	KU	RE
How many chocpops will be eaten in the year 2001? Give your answer in **scientific notation**.	2	

7. 2000 Paper 2 Q.2

The mass of water on the earth's surface is $1{\cdot}41 \times 10^{18}$ tonnes.

The total mass of the earth is $5{\cdot}97 \times 10^{21}$ tonnes.

Express the mass of water on the earth's surface as a percentage of the total mass of the earth.

Give your answer in **scientific notation**. 3

8. 1999 Paper 2 Q.2

A newspaper report stated:

"Concorde has now flown $7{\cdot}1 \times 10^{7}$ miles.

This is equivalent to 300 journeys from the earth to the moon."

Calculate the distance from the earth to the moon.

Give your answer in **scientific notation correct to 2 significant figures**. 3

9. 1998 Paper 2 Q.1

KU	RE

The annual profit (£) of a company was $3{\cdot}2 \times 10^{9}$ for the year 1997.

What profit did the company make per second?

Give your answer to **three significant figures**. 2

10. 1995 Q.2

Large distances in space are measured in light years.

A camera on a space telescope photographs a galaxy, a distance of 50 million light years away.

One light year is approximately $9{\cdot}46 \times 10^{12}$ kilometres.

Calculate the distance of the galaxy from the space telescope in kilometres.

Give your answer in scientific notation. 2

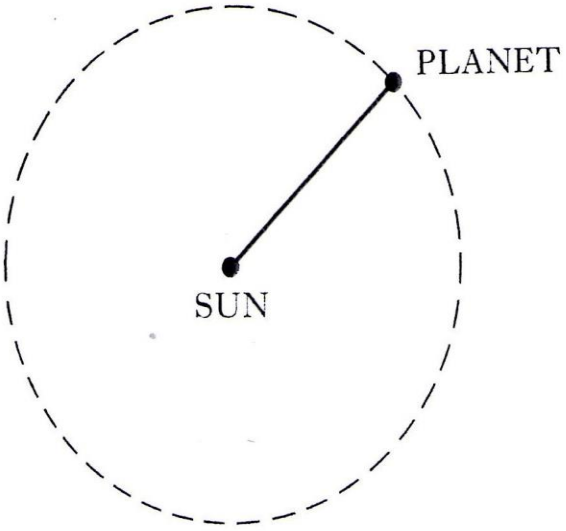
11. 1994 Q.7

A planet takes 88 days to travel round the Sun.

The approximate path of the planet round the Sun is a circle with diameter $1{\cdot}2 \times 10^7$ kilometres.

Find the speed of the planet as it travels round the Sun.

Give your answer in kilometres per hour, correct to 2 significant figures.



4

12. 1992 Paper 1 Q.4 (KU paper – you may use a calculator)

There are 5×10^9 red blood cells in **1 millilitre** of blood.

The average person has **5·5 litres** of blood.

How many red blood cells does the average person have in their blood?

Give your answer in **scientific notation.**

3KU

13. 1990 Paper 1 Q.5 (KU Paper – you may use a calculator)

The planet Pluto is at a distance of $5{\cdot}9 \times 10^9$ kilometres from the sun and the speed of light is $3{\cdot}0 \times 10^5$ kilometres per second.

Calculate, to the nearest half hour, the time taken for light from the sun to reach the planet Pluto. **(4)**