IGCSE CORE – Types of number

JUNE 05 P1

6 2, 3, 5, 9, 12, 15

From the set of numbers above, write down

(a) a multiple of 6,

Answer (a) ..... [1]

(b) a prime factor of 27.

Answer (b) ..... [1]

NOV 05 P1

4 Which one of the numbers below is **not** a rational number?

7 $\frac{2}{3}$ $\sqrt{5}$ $-1\frac{1}{2}$ $\sqrt{81}$

Answer ..... [1]

NOV 05 P1

10 An integer n is such that $60 \leqslant n \leqslant 70$.
Write down a value of n which is

(a) a prime number,

Answer(a) ..... [1]

(b) a multiple of 9,

Answer(b) ..... [1]

(c) a square number.

Answer(c) ..... [1]

NOV 06 p1

1 (a)

$\frac{2}{3}$ 2 3 3.14 $\sqrt{35}$ 10 24 37 45 88

From the list of numbers above choose one that is

(i) an irrational number, *Answer(a)* (i) ..... [1]

(ii) the cube root of 27, *Answer(a)* (ii) ..... [1]

(iii) a multiple of 9, *Answer(a)* (iii) ..... [1]

(iv) a prime number, *Answer(a)* (iv) ..... [1]

(v) a factor of 44, *Answer(a)* (v) ..... [1]

(vi) the product of 6 and 4. *Answer(a)* (vi) ..... [1]

May 06 p1

4 (a) Write down a number, other than 1, which is a **factor** of both 14 and 35.

Answer(a) ..... [1]

(b) Write down a number which is a **multiple** of both 14 and 35.

Answer(b) ..... [1]

IGCSE CORE – ERROR IN MEASUREMENT

JUNE 05 P1

9 At the market, Fernando weighs his fruit to the nearest 10 grams.
He weighs a mango as 260 grams.
Complete the statement in the answer space.

Answer .....g ⩽ weight of mango < ..... g [2]

NOV 05 P1

3 The highest mountain in Argentina is Aconcagua.
Its height is 6960 metres, correct to the nearest **twenty** metres.
Write down the smallest possible height of Aconcagua.

Answer ..... m [1]

May 06 p1

7 The population of a city is 350 000 correct to the nearest ten thousand.
Complete the statement about the limits of the population.

Answer ..... ⩽ population < ..... [2]

NOV 06 p1

14 The length of a mirror is 15.6 centimetres correct to the nearest millimetre.
Complete the statement below about the length of the mirror.

Answer ..... cm ⩽ length < .....cm [2]

CORE IGCSE - SEQUENCES

JUNE 05 P1

16 Look at the sequence of numbers

7, 11, 15, 19, ...

(a) Write down the next number in the sequence.

Answer (a) ..... [1]

(b) Find the 10th number in the sequence.

Answer (b) ..... [1]

(c) Write an expression, in terms of n, for the nth number in the sequence.

Answer (c) ..... [1]

NOV 06 p1

4 The nth term of a sequence is given by n^2+2.
Work out the 4th term.

Answer ..... [1]

NOV 05 P3

8 The diagram below shows a sequence of patterns made from dots and lines.

1 dot 2 dots 3 dots 4 dots

(a) Draw the next pattern in the sequence in the space above. [1]

(b) Complete the table for the numbers of dots and lines.

Dots	1	2	3	4	5	6
Lines	4	7	10			

[2]

(c) How many lines are in the pattern with 99 dots?

Answer(c) ..... [2]

(d) How many lines are in the pattern with n dots?

Answer(d) ..... [2]

(e) Complete the following statement.

There are 85 lines in the pattern with .....dots. [2]

May 06 p3

4

Diagram 1 Diagram 2 Diagram 3 Diagram 4

The diagrams show a sequence of regular hexagons.
Sticks of equal length are used to make the hexagons.

(a) Complete the table for the number of sticks in each diagram.

Diagram	1	2	3	4	5
Sticks	6	11			

[3]

(b) How many sticks are there in the 20th diagram?

Answer(b) ..... [2]

(c) How many sticks are there in the *n*th diagram?

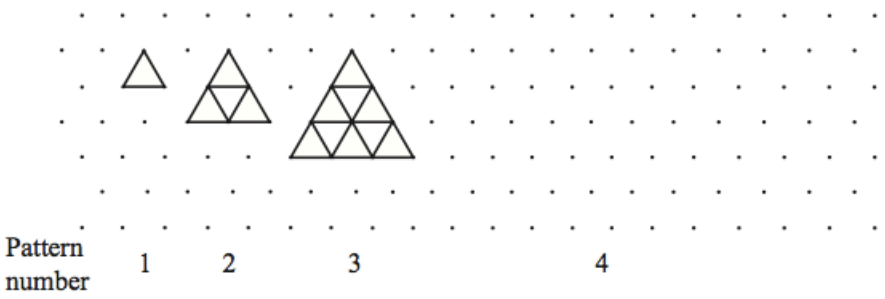
Answer(c) ..... [2]

(d) How many hexagons are there in a diagram which has 186 sticks?

Answer(d) ..... [2]

NOV 06 p1 - Sequences

(b) The diagram below shows a sequence of patterns made with small triangular tiles.



(i) Draw the next pattern in the sequence. [1]

(ii) Complete the table below.

Pattern number	1	2	3	4	5	6
Number of tiles	1	4	9			

[2]

(iii) How many tiles will be in the 100th pattern?

Answer(b) (iii) ..... [1]

(iv) How many tiles will be in the *n*th pattern?

Answer(b) (iv) ..... [1]

(v) What is the special name given to the numbers in the second row of the table?

Answer(b) (v) ..... [1]

IGCSE CORE – ROUNDING, ESTIMATING AND USING A CALCULATOR

JUNE 05 P1

1 The diameter of the sun is 1 392 530 kilometres.
Write this value correct to 4 significant figures.

Answer ..... km [1]

JUNE 05 P1

19 $$\frac{8.95 - 3.05 \times 1.97}{2.92}$$

(a) (i) Write the above expression with each number rounded to one significant figure.

Answer (a)(i) ..... [1]

(ii) Use your answer to find an **estimate** for the value of the expression.

Answer (a)(ii) ..... [1]

(b) Use your calculator to work out the value of the **original** expression.
Give your answer correct to 2 decimal places.

Answer (b) ..... [1]

NOV 05 P1 –

15 (a) Write 0.48 correct to 1 significant figure.

Answer(a) ..... [1]

(b) (i) Find an approximate answer for the sum

$$9.87 - 5.79 \times 0.48$$

by rounding each number to 1 significant figure. Show your working.

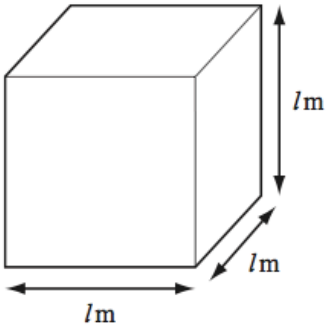
Answer(b)(i) ..... [1]

(ii) Use your calculator to find the exact answer for the sum in **part (b) (i)**.
Write down all the figures on your calculator.

Answer(b)(ii) ..... [1]

May 06 p1

5



NOT TO SCALE

A cube of side l metres has a volume of 20 cubic metres.
Calculate the value of l.

Answer l = ... [2]

May 06 p1

6 **(a)** Work out

$$\frac{12.48 \times 0.063}{\sqrt{8} + 7.52}.$$

Write down all the figures on your calculator display.

Answer(a) ..... [1]

(b) Write your answer to **part (a)** correct to 2 significant figures.

Answer(b) ..... [1]

NOV 06 p1

9 Work out 43^3, giving

(a) your full calculator display,

Answer(a) ..... [1]

(b) your answer correct to the nearest thousand.

Answer(b) ..... [1]

NOV 06 p1

22

$$\frac{13.5+16}{4.8-(22\div13)}$$

(a) Rewrite this calculation with each number rounded to 1 significant figure.

Answer(a)

[2]

(b) Use your answer to **part (a)** to estimate the answer to the calculation.
Show your working and write your answer correct to 1 significant figure.

Answer(b) ..... [1]

IGCSE CORE – FRACTIONS

JUNE 05 P1

15 **(a)** Write down a common multiple of 6 and 8.

Answer (a) ..... [1]

(b) Work out

$$\frac{5}{6}-\frac{3}{8}.$$

Give your answer as a fraction in its lowest terms.
You must show all your working.

Answer (b) ..... [2]

NOV 05 P1

6 A bottle of lemonade contains $1\frac{1}{2}$ litres.

A glass holds $\frac{1}{8}$ litre.

How many glasses can be filled from one bottle of lemonade?

Answer ..... [2]

NOV 06 p1

10 Write these fractions in order with the smallest first.

$$\frac{33}{50} \quad \frac{2}{3} \quad \frac{6}{10}$$

Answer ..... < ..... < ..... [2]

IGCSE CORE – NUMBER CALCULATIONS AND TIME

JUNE 05 P1

18 Camilla has \$5 to spend in the market.
She buys $1\frac{1}{2}$ kilograms of bananas priced at 80 cents per kilogram and 3 yams priced at 45 cents each.
How much money does she have left?

Answer \$ ..... [3]

MAY 05 P3

1 Juana is travelling by plane from Spain to England.

(a) Her case weighs 17.2 kilograms.
The maximum weight allowed is 20 kilograms.
By how much is the weight of her case below the maximum allowed?

Answer (a) ..... kg [1]

(c) She travels from her home to the airport by train.
She catches a train at 09 55 and the journey takes 45 minutes.

(i) Write down the time she arrives at the airport.

Answer (c)(i) ..... [1]

(ii) She has to wait until 12 10 to get on her plane.
Work out how long she has to wait.

Answer (c)(ii) ..... h ..... min [1]

(d) The plane takes off at 12 40 Spanish time, which is 11 40 English time.
The flight takes $2\frac{1}{4}$ hours.
What is the time in England when she arrives?

Answer (d) ..... [1]

NOV 05 P1

19 Joseph buys 45 kilograms of potatoes from a supplier for \$0.65 per kilogram.

(a) How much does he pay for the potatoes?

Answer(a) \$..... [1]

(b) He then puts the potatoes into bags which each hold 2.5 kilograms.
How many bags can he fill with the potatoes?

Answer(b) ..... bags [1]

(c) At the market he sells the bags of potatoes for \$2.20 per bag.
Calculate the smallest number of **complete** bags he needs to sell in order to make a profit.

Answer(c) ..... bags [2]

May 06 p1

14 **(a)** Pierre arrives at school at 08 40 and leaves at 15 30.
How long, in hours and minutes, is he in school?

Answer(a) ..... h ..... min [1]

(b) Each day, Pierre gets up at 07 00 and goes to bed at 22 00.
What percentage of each day is he in bed?

Answer(b) ..... % [2]

IGCSE CORE – STANDARD FORM

JUNE 05 P1

20

Country	Area (km^2)
Brazil	8.51×10^6
Panama	7.71×10^4
Guyana	2.15×10^5
Colombia	1.14×10^6

The table above gives the areas of four South American countries, correct to 3 significant figures.

(a) List the countries in order of area, smallest to largest.

Answer (a) ..... < Guyana < ..... < ..... [1]

(b) Use a whole number to complete the statement in the answer space.

Answer (b) The area of Colombia is approximately ..... times the area of Guyana. [2]

NOV 05 P1

1 The distance from Buenos Aires to Wellington is approximately 10 100 kilometres.
Write this number in standard form.

Answer ..... km [1]

NOV 06 p1

13 Work out $2.6 \times 10^{-3} + 9.1 \times 10^{-4}$.
Write your answer in standard form.

Answer ..... [2]

(c) Use your calculator to find the answer to the **original** calculation correct to 3 significant figures.

Answer(c) ..... [2]

May 06 p1

20 There are 565 sheets of paper in a book.

(a) How many sheets of paper are there in 2000 of these books?
Give your answer in standard form.

Answer(a) ..... [2]

(b) A pile of 565 sheets of paper is 25 millimetres high.
Calculate the thickness of 1 sheet of paper.
Give your answer in standard form.

Answer(b) ..... mm [3]

IGCSE CORE – DIRECTED NUMBERS

May 06 p1

1 The temperature at noon at an Antarctic weather centre was –15 °C.
At midnight it had fallen by 12 °C.
What was the temperature at midnight?

Answer ..... °C [1]

MAY 05 P3

3

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Minimum temperature °C	4	6	0	−2	−4	2	
Maximum temperature °C	8	10	5	7	2	7	

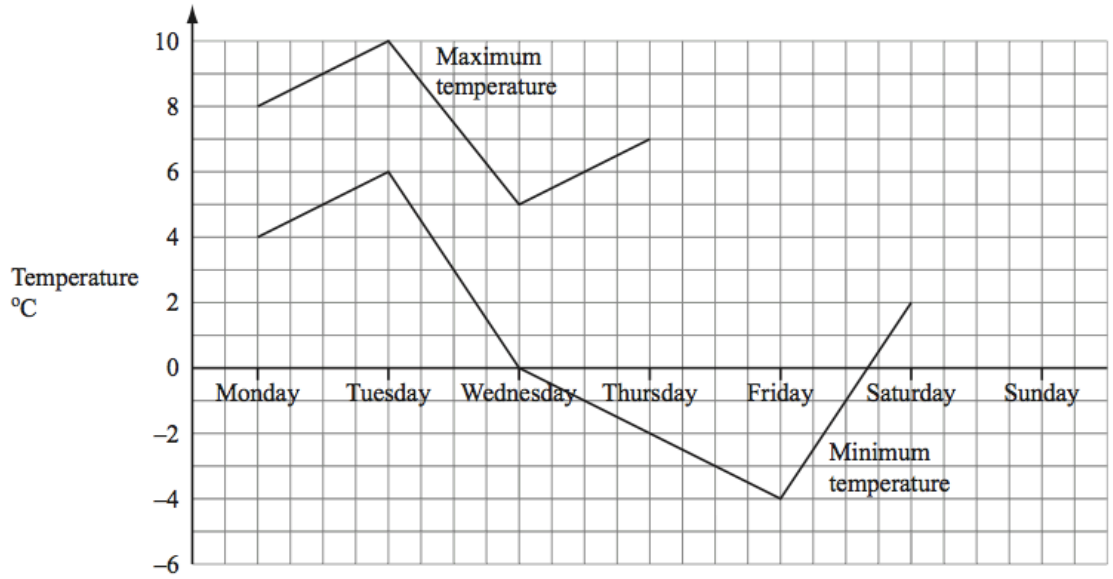
The table shows the minimum and maximum temperatures on six days of a week.

(a) (i) On Sunday the minimum temperature was 5 °C lower than on Saturday.
The maximum temperature was 2 °C higher than on Saturday.
Use this information to complete the table. [2]

(ii) Find the difference between the minimum and maximum temperatures on Thursday.

Answer(a)(ii) ..... °C [1]

(b) Use the table to complete the graphs below for all seven days.



[2]

(c) Use your graphs to find
(i) on how many days the temperature fell below −1 °C,

Answer(c)(i) ..... [1]

(ii) which day had the largest difference between minimum and maximum temperatures.

Answer(c)(ii) ..... [1]

NOV 05 P1

7 The table below shows the average monthly temperatures (°C) in the Islas Orcadas, Argentina.

Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1	1	0.5	–1	–5	–8	–9	–8	–5	–3	–1	0.5

(a) Work out the difference between the highest and the lowest average monthly temperature.

Answer(a) .....°C [1]

(b) The highest recorded temperature for July is x °C.
This is 21 °C above the average for July shown in the table.
Work out the value of x.

Answer(b) x = ... [1]

NOV 06 p1

1 At noon one day the temperature is −9.5 °C.
By midnight the temperature has fallen by 3.6 °C.
What is the temperature at midnight?

Answer ..... °C [1]

IGCSE CORE – ORDERING FRACTIONS, DECIMALS AND PERCENTAGES

NOV 05 P1

9 0.072 72% 0.702 $\frac{7}{10}$ $\frac{7}{100}$ 7.2%

From the values listed above, write down

(a) the smallest,

Answer(a) ..... [1]

(b) the largest,

Answer(b) ..... [1]

(c) the two which are equal.

Answer(c) ..... and ..... [1]

May 06 p1

2 0.09 90% $\frac{9}{1000}$ 9% 0.9 $\frac{9}{100}$ 900%

Write down the three numbers from the list above which have the same value.

Answer .... [1]

IGCSE CORE – SYMBOLS, POWERS AND ORDER OF OPERATIONS

NOV 05 P1

14 = < >

Choose one of the symbols given above to complete each of the following statements.

When $x = 6$ and $y = -7$, then

(a) x ..... y [1]

(b) x^2 ..... y^2 [1]

(c) $y - x$ ..... $x - y$ [1]

NOV 06 p1

12 Only two of the following five statements are correct.

A $0.07077 \geqslant 0.07707$
B $0.07077 \neq 0.07707$
C $0.07077 = 0.07707$
D $0.07077 < 0.07707$
E $0.07077 > 0.07707$

Write down the letters which correspond to the two correct statements.

Answer ..... and ..... [2]

NOV 06 p1

2 Insert brackets to make the following statement correct.

$2 \times 3 - 4 + 5 = 3$ [1]