

### Question 1

$\sqrt{5}$      -7     343     -11     0.4     2.5      $\frac{1}{3}$

From this list of numbers, write down

- (a) a cube number, [1]
- (b) the smallest number, [1]
- (c) A natural number. [1]

### Question 2

One day, at noon, in Maseru, the temperature was 17 °C. At midnight the temperature was 20 °C lower.

Work out the temperature at midnight.

[1]

### Question 3

(a) 1 and 12 are factors of 12.

Write down all the other factors of 12.

[1]

(b) Write down the multiples of 9 between 20 and 40.

[1]

Write 23.4571 correct to

(a) 4 significant figures,

[1]

(b) the nearest 10.

[1]

### Question 5

The table shows the temperatures in five places at 10 am one day in January.

Place	Temperature ( $^{\circ}\text{C}$ )
Helsinki	-7
Chicago	-10
London	3
Moscow	-4
Bangkok	26

[1]

(a) Which place was the coldest?

(b) At 2 pm the temperature in Helsinki had increased by  $4^{\circ}\text{C}$ .

[1]

Write down the temperature in Helsinki at 2 pm.

### Question 6

Write 0.071 64 correct to 2 significant figures.

[1]

Write down the temperature which is  $5\text{ }^{\circ}\text{C}$  below  $-2\text{ }^{\circ}\text{C}$ .

[1]

### Question 8

Write 0.040 190 7 correct to

(a) 3 significant figures,

[1]

(b) 3 decimal places.

[1]

### Question 9

Simplify.

$$n^2 \times n^5$$

[1]

Find the lowest common multiple (LCM) of 36 and 48.

[2]

### Question 11

Write 3.5897 correct to 4 significant figures.

[1]

### Question 12

8 9 10 11 12 13 14 15 16

From the list of numbers, write down

(a) the square numbers,

[1]

(b) a prime factor of 99.

[1]

Write 71 496 correct to 2 significant figures.

[1]

### Question 14

Find the highest common factor (HCF) of 56 and 70.

[2]

### Question 15

(a) Write 2016 as the product of prime factors.

[3]

(b) Write 2016 in standard form.

[1]

### Question 16

At midnight the temperature in Newtown was  $-8^{\circ}\text{C}$ .

At noon the next day the temperature in Newtown was  $9^{\circ}\text{C}$ .

Work out the rise in temperature from midnight to noon.

[1]

### Question 17

- 1 One January day in Munich, the temperature at noon was  $3^{\circ}\text{C}$ .  
At midnight the temperature was  $-8^{\circ}\text{C}$ .

Write down the difference between these two temperatures.

[1]

### Question 18

- 11 The sum of the prime numbers less than 8 is equal to 17.

(a) Find the sum of the prime numbers less than 21. [2]

(b) The sum of the prime numbers less than  $x$  is 58.

Find an integer value for  $x$ .

[2]

### Question 19

On a mountain, the temperature decreases by  $6.5\text{ }^{\circ}\text{C}$  for every 1000 metres increase in height.  
At 2000 metres the temperature is  $10\text{ }^{\circ}\text{C}$ .

Find the temperature at 6000 metres.

[2]

### Question 20

Write the following numbers correct to one significant figure.

(a) 7682

[1]

(b) 0.07682

[1]

### Question 21

Write each number correct to 1 significant figure and estimate the value of the calculation.  
You must show your working.

$$2.65 \times 4.1758 + 7.917$$

[2]

### Question 22

$p$  is the largest prime number between 50 and 100.

$q$  is the smallest prime number between 50 and 100.

Calculate the value of  $p - q$ .

[2]

### Question 23

Write down the next two prime numbers after 43.

[2]

### Question 24

Write down the next two prime numbers after 47.

[2]

### Question 25

Write the number 1045.2781 correct to

(a) 2 decimal places,

[1]

(b) 2 significant figures.

[1]

### Question 26

Write down

(a) an irrational number,

[1]

(b) a prime number between 60 and 70.

[1]

### Question 27

Write down the next prime number after 89.

[1]

The table gives the average surface temperature ( $^{\circ}\text{C}$ ) on the following planets.

Planet	Earth	Mercury	Neptune	Pluto	Saturn	Uranus
Average temperature	15	350	-220	-240	-180	-200

- (a) Which planet has a temperature  $20^{\circ}\text{C}$  lower than that of Uranus? [1]

### Question 28

Write the number 2381.597 correct to

- (a) 3 significant figures, [1]
- (b) 2 decimal places, [1]
- (c) the nearest hundred. [1]

### Question 29

From the list of numbers  $\frac{22}{7}$ ,  $\pi$ ,  $\sqrt{14}$ ,  $\sqrt{16}$ ,  $27.4$ ,  $\frac{65}{13}$  write down

(a) one integer, [1]

(b) one irrational number. [1]

### Question 30

The table shows the maximum daily temperatures during one week in Punta Arenas.

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
2°C	3°C	1°C	2.5°C	-1.5°C	1°C	2°C

(a) By how many degrees did the maximum temperature change between Thursday and Friday?

[1]

(b) What is the difference between the greatest and the least of these temperatures?

[1]

(a)  $72 = 2 \times 2 \times 2 \times 3 \times 3$  written as a product of prime factors.

(i) Write the number 126 as a product of prime factors.

(ii) Find the value of the highest common factor of 72 and 126.

(iii) Find the value of the lowest common multiple of 72 and 126.

(c) Written as the product of prime factors  $48 = 2^4 \times 3$ .

(i) Write 60 as the product of prime factors.

(ii) Work out the highest common factor (HCF) of 48 and 60.

(iii) Work out the lowest common multiple (LCM) of 48 and 60.

1 Write the following in order of size, smallest first.

[2]

$$19\% \quad \frac{1}{5} \quad \sqrt{0.038} \quad \sin 11.4^\circ \quad 0.719^5$$

4 Write the following in order of size, smallest first.

[2]

$$\cos 100^\circ \quad \tan 100^\circ \quad \frac{-1}{100} \quad 100^{-0.1}$$

5 Write the following in order of size, **smallest** first.

$$(1.5)^{\frac{2}{3}} \quad \left(\frac{2}{3}\right)^{1.5} \quad \left(\frac{2}{3}\right)^{-1.5} \quad \left(-\frac{2}{3}\right)^{\frac{2}{3}}$$

[2]

Write the following in order of size, smallest first.

$$0.47 \quad \frac{8}{17} \quad \sqrt{0.22} \quad \tan 25^\circ$$

[2]

For this question,  $1 < x < 2$ .

Write the following in order of size, **smallest first**.

[2]

$$\frac{5}{5x - x - 5x} x^5$$

Write the following in order of size, smallest first.

[2]

$$\frac{2}{\sqrt{3}}, \quad \sqrt{3}, \quad 2^{-3}, \quad \sqrt{2}, \quad 2 - \frac{\sqrt{3}}{2}$$

4 When  $0 < x < 0.9$ , write the following in order of size with the smallest first.

[2]

$$\cos x^\circ, \quad x^2, \quad x^{-1}$$

$$0.0008^{-5}, \quad 8 \times 10^{-5}, \quad 0.8\%, \quad \frac{1}{125000}$$

[2]

Write the numbers above in order, smallest first.

Write the following in order of size, smallest first.

$$\frac{1}{4}, \quad \sqrt{2}, \quad \frac{3}{4}, \quad \pi, \quad 1, \quad \sin 47^\circ$$

[2]

4 Rearrange the quantities in order with the smallest first.

$$\frac{1}{8}\%, \quad \frac{3}{2500}, \quad 0.00126$$

[2]