Surname	
Other Names	
Candidate's Signature	

GCSE 9 - 1 Questions

Negative Numbers

Calculator Not Allowed

INSTRUCTIONS TO CANDIDATES

- Write your name in the space provided.

- Write your answers in the spaces provided in this question paper.

- Answer ALL questions.

- Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.

Total Marks :

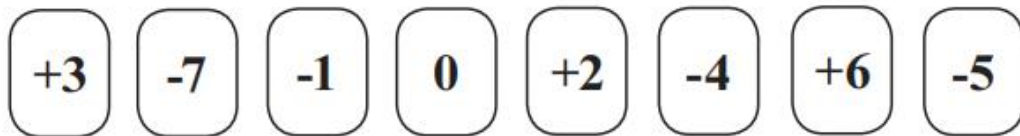1) The following temperatures were recorded in ºC over a period of time

$$12, \quad -2, \quad 7, \quad -9, \quad 13, \quad -14, \quad 6, \quad -10$$

From the list write down

(a) the warmest temperature,   Answer _____ ºC [1]

(b) the coldest temperature.   Answer _____ ºC [1]

2) In a game, a player is asked to select as many cards as possible from the ones shown below and add the numbers together the numbers on the selected cards to make a total.

$$+3 \quad -7 \quad -1 \quad 0 \quad +2 \quad -4 \quad +6 \quad -5$$

Using as many cards as possible, show how a player could achieve a total of –2.

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[3]

3) The table shows the minimum and maximum daily temperatures in six cities in January.

City	Minimum °C	Maximum °C
Paris	−1	12
London	−2	9
Barcelona	3	16
Moscow	−15	−1
Athens	0	15
Glasgow	−5	4

(a) Which city recorded the lowest **minimum** temperature?

Answer _____ [1]

(b) What is the difference in °C between Glasgow's minimum and maximum temperatures?

Answer _____°C [1]

(c) Which two cities had the same difference between their minimum and maximum temperatures?

Answer _____ and _____ [1]

4) (a) Calculate $(-7) \times (-9)$

Answer _____ [1]

5) Using the two instructions given, fill in the blanks in the grid below.   [3]

Each column must add up to 10

1	2	3	
3	4	−5	
	4		
1	0	9	0

Each row must add up to 10

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6)

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 10
  9
  8
  7
  6
  5
  4
  3
  2
  1
  0
 -1
 -2
 -3
 -4
 -5
 -6
 -7
 -8
 -9
-10
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To play the game Ladders, players take turns to pick a card from a pile placed face down. Each card has a positive or negative number on the face.

If they get a positive number they move their counter **up** that number of rungs.
If they get a negative number they move their counter **down** that number of rungs.

(a) Bill starts on 0 and his first three cards are +4, +3, –2
Which rung is his counter on now?

Answer _____ [1]

(b) Jane starts on 0 and her first three cards are –3, –5, +1
Which rung is her counter on now?

Answer _____ [1]

(c) Later in the game, Bill's counter is on rung 3
He takes a card and moves to rung –4
What was the number on his card?

Answer _____ [1]

7)

The height of Mount Snowdon is approximately 1100 metres above sea level.
It is known that temperature decreases by 1°C for every 100 metres increase in height.

When the temperature at sea level is 8°C, what is the temperature at the top of the mountain?

[2]

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8) The display on a fridge/freezer shows the temperature in each compartment as follows

| FRIDGE: 5°C | −18°C: FREEZER |

(i) How much colder is the freezer than the fridge?

Answer _____ °C [1]

(ii) The door of the freezer was not closed properly and as a result the temperature in the freezer rose by 5 °C.

What temperature should now be showing on the display for the freezer?

Answer _____ °C [1]

9) *You will be assessed on the quality of written communication in this question.*

Nia and Charlotte each play a game where the points are scored as follows:

| Each win +6 points |
| Each loss −4 points |

Nia wins 5 games and loses 3 games.
Charlotte wins 3 games and loses 5 games.
What is the difference in their final scores?

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[7]

10) The bank balances of five university students are

Pat	William	Alice	Brian	Fiona
– £1,250	– £2,100	– £1,463	– £2,010	+ £475

(a) Who owes the most?

Answer _____ [1]

(b) Of those who owe money, who owes the least?

Answer _____ [1]

(c) Alice pays £500 into her account. How much does she now owe?

Answer £_____ [1]

(d) Brian and Fiona are brother and sister. How much is the difference in their two balances?

Answer £_____ [1]

11)
Complete the table below which shows the change in the midday temperatures on two successive days at four locations.
The first row has been done for you.   [3]

Location	Temperature at midday on the first day (°C)	Change (°C)	Temperature at midday on the following day (°C)
Holyhead	−2	Up 3	1
Paris	4		−1
Helsinki	−5	Down 2	
Glasgow		Up 1	0

12) Steve is training for a 1500 metre race He has timed 10 practice runs. He has recorded each of his times as the number of seconds over or under 4 minutes.

   For example,

   ● a time of 4 minutes 6 seconds was recorded as $+6$

   ● a time of 3 minutes 58 seconds was recorded as -2

   His record was as follows

   $+2$ $+7$ -3 -5 $+8$ -3 -13 0 -2 -10

   (a) How many of his practice runs were completed in less than four minutes?

   [1]

   (b) What was his slowest time?

   ....minutes ....seconds   [1]

   (c) What was his fastest time?

   ....minutes ....seconds   [1]

   (d) What was the difference in time between his fastest and slowest practice times?

   [2]

13) The mid-day temperature at the summit of Snowden was recorded over a seven day period. The recorded temperatures for five of those days are shown in the table below.

   Tuesday was $2°C$ warmer than Monday.

   Saturday was $6°C$ colder than Friday.

   (a) Complete the table for Tuesday and for Saturday.

Day	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Temperature	$-4°C$		$0°C$	$2°C$	$1°C$		$3°C$

   [2]

   (b) What was the range of the recorded temperatures over the seven days?

   [1]

14) The table below shows the scores in the final of the Langford Bay Golf Championship.
The player with the lowest score wins the championship.

Name	Score
A. Jenkins	−2
H. Smith	8
J. Evans	1
L. Hakami	−3
F. Loxley	−7
P.J. Ames	5
G. Francis	−1

(a) The table below lists some of the names and scores of the players in order from 1st place to 7th place.
Complete the table.

[3]

Position	Name	Score
1st		
2nd	L. Hakami	−3
3rd		
4th		
5th	J. Evans	1
6th	P.J. Ames	5
7th		

(b) What was the difference between the scores of the players in 2nd and 6th places?

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.... [1]

(c) Which two players had a difference in their score of 5?

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.... [1]

15) A six-sided dice has the following numbers on its six faces.

$$-3 \quad -2 \quad -1 \quad +1 \quad +2 \quad +3$$

In a game, the dice is thrown 4 times and the player's total score is found by adding the four numbers thrown.

(a) What is the lowest possible total score? [1]

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(b) Caryl throws +2, −3 and −1 with her first three throws.
What is the highest possible total score that Caryl can have after her fourth throw? [1]

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(c) When Nikos played the game, he had a total score of −2.

(i) Write down four numbers that Nikos might have thrown. [1]

(ii) What is the range of the four numbers you have written in the boxes? [1]

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16) (a) Before 2010, the lowest temperature ever recorded on Earth was −89·2°C.
In August 2010, a new record low temperature of −93·2°C was recorded.
What is the difference between these temperatures? [1]

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(b) On July 2 1936, a temperature of 46°C was recorded in Minnesota, USA.
On February 2 1996, a temperature of −51°C was recorded in Minnesota.
What is the difference between these temperatures? [1]

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(c) What temperature is mid-way between −12°C and 16°C? [1]

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17)

Five friends run a small business.

They are all expected to work for 160 hours each month.

Each month, a score is kept of the number of hours above or below 160 hours that each person has worked.

For example,
- a person who worked for 163 hours would be given a score of 3,
- a person who worked for 158 hours would be given a score of –2.

The table below is a summary of their scores for the month of March.

Name	Score
Matilda	7
Jamal	–4
Bronwen	–11
Eifion	0
Salima	5

(a) Who had worked the most hours in March? [1]

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(b) How many hours did Bronwen work in March? [1]

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(c) In April, Salima worked 20 hours less than she worked in March.
What **score** did Salima get in April? [1]

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(d) The working hours of the five friends were added together.
Had they, **as a group**, worked for more or less hours than expected?
You must give the total number of hours, above or below, the expected amount. [1]

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18)

You will be assessed on the quality of your written communication in this question.

Two teams, Team A and Team B, took part in a school quiz.
They were asked 10 questions in a General Knowledge round and 5 questions in a Picture round.

In the General Knowledge round:
- correct answers scored 5 points
- incorrect answers scored -3 points.

In the Picture round:
- correct answers scored 10 points
- incorrect answers scored -5 points.

Here are the results:

Team A		Team B	
General Knowledge round	*Picture round*	*General Knowledge round*	*Picture round*
5 correct 5 incorrect	3 correct 2 incorrect	3 correct 7 incorrect	4 correct 1 incorrect

Which team won the competition and by how many points?
You must show all your working. [7]

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19) A factory making computer printers expects to produce 800 printers each day.

The daily production is recorded as follows.

- A daily production of 815 printers is recorded as +15

- A daily production of 796 printers is recorded as −4

The production record for a five day period is shown below.
Two of the entries are blank.

Monday	Tuesday	Wednesday	Thursday	Friday
−13	+12			−8

On Wednesday, 793 printers were produced.

On Thursday, 2 fewer printers were produced than on Friday.

(a) Fill in the entries in the table for Wednesday and Thursday.

[2]

(b) How many printers were produced on Monday?

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[1]

(c) How many more printers were produced on the highest production day than on the lowest production day?

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[1]

20) Complete each row of the following table.
The first row has been done for you. [3]

Place	Temperature at midday	Change	Temperature at following midday
Holyhead	−1°C	Up 3°C	2°C
Dolgellau	−3°C		1°C
Cardigan	2°C	Down 3°C	
Newport		Up 2°C	−2°C