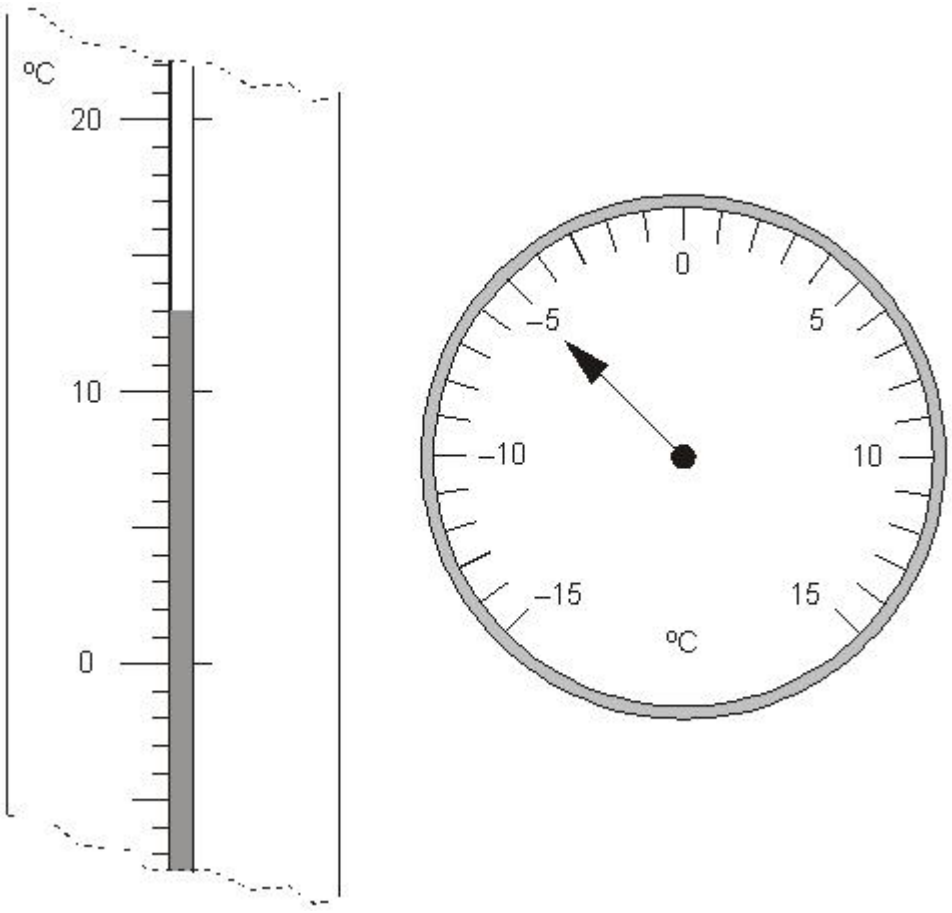
Q1.

Here are two thermometers.

They show two different temperatures.



What is the **difference** between the two temperatures?

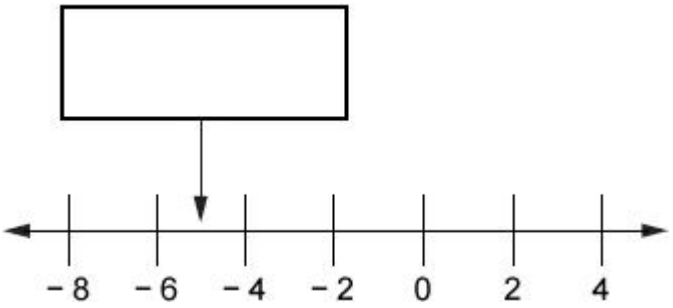
degrees

1 mark

Q2.

Here is part of a number line.

Write the number shown by the arrow.



1 mark

Q3.

The temperature **inside** an aeroplane is **20 °C**.

The temperature **outside** the aeroplane is **–30 °C**.

What is the **difference** between these temperatures?

degrees

1 mark

Q4.

Carol has a rule for a sequence of numbers.

Her rule is

"The next number is the sum of the two previous numbers."

Use Carol's rule to write in the three missing numbers.

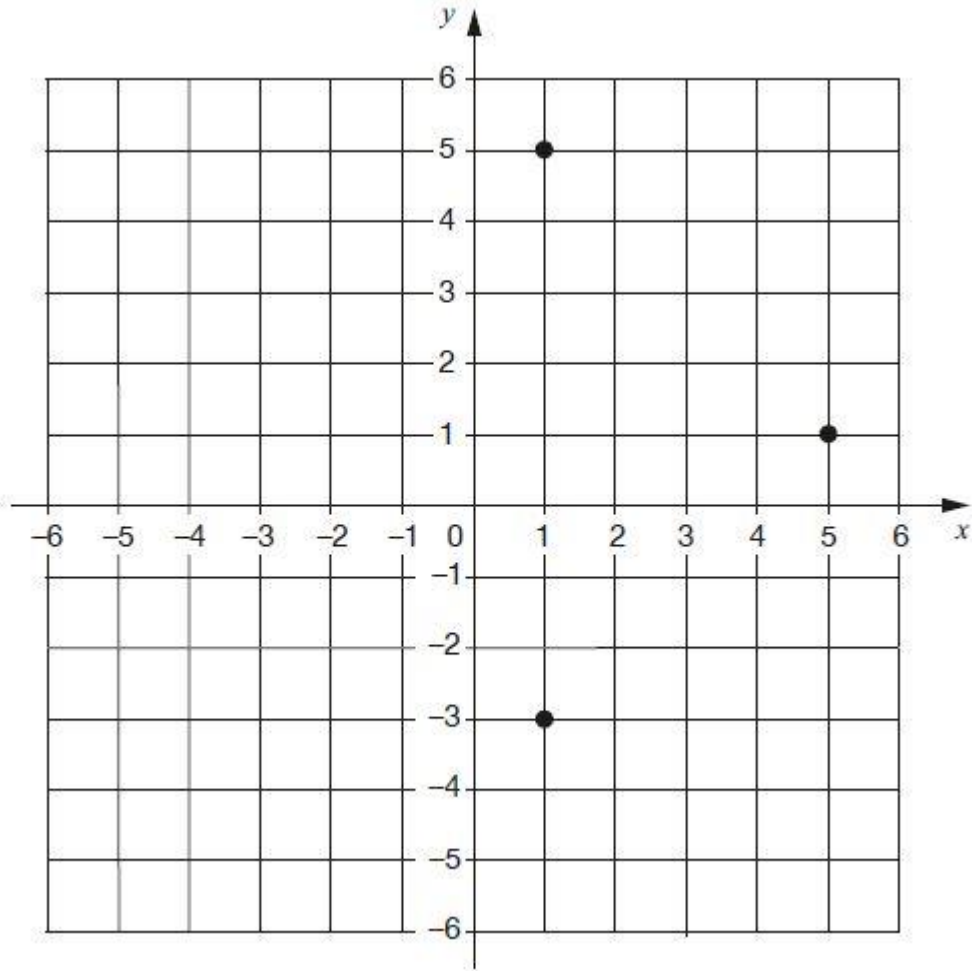
☐, ☐, ☐, 0, 1, 1, 2, 3, 5, 8, ...

1 mark

Q5.

Layla draws a **square** on this coordinate grid.

Three of the vertices are marked.



What are the coordinates of the missing vertex?

(,)

1 mark

Q6.

Jon makes a sequence of numbers.

His rule is to add the **same amount** each time.

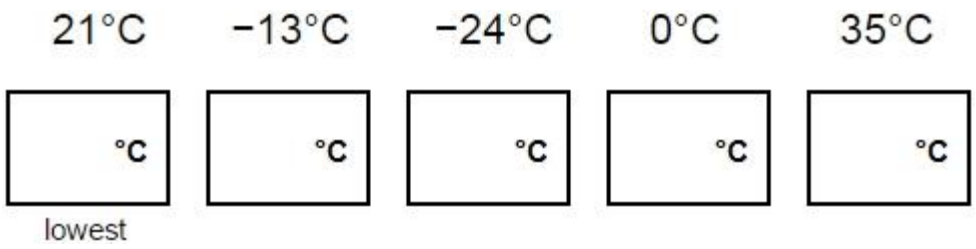
Write in the missing numbers.

−1				19

1 mark

Q7.

Put these temperatures in order, starting with the **lowest**.



1 mark

Q8.

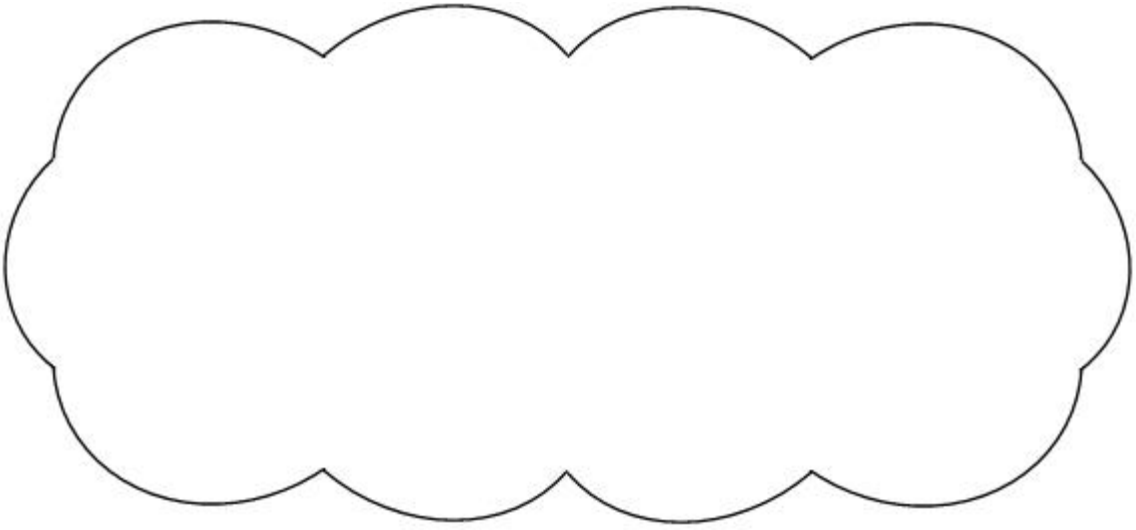
I am thinking of a number that is not zero.

I **multiply** my number by **5**

Tick (✓) the statement below that is true.

- ☐ The answer must be positive.
- ☐ The answer must be negative.
- ☐ The answer could be positive or negative.

Explain how you know.



1 mark

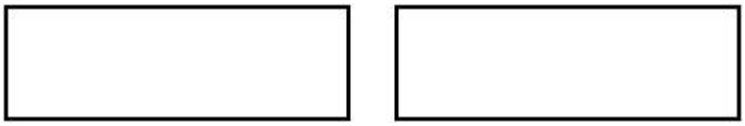
Q9.

Circle **two** numbers with a **difference** of **8**

–5 –4 –3 –2 –1 0 1 2 3 4 5

1 mark

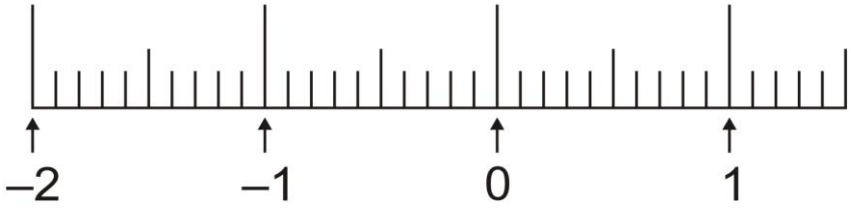
Write **two** numbers with a **sum** of **–6**



1 mark

Q10.

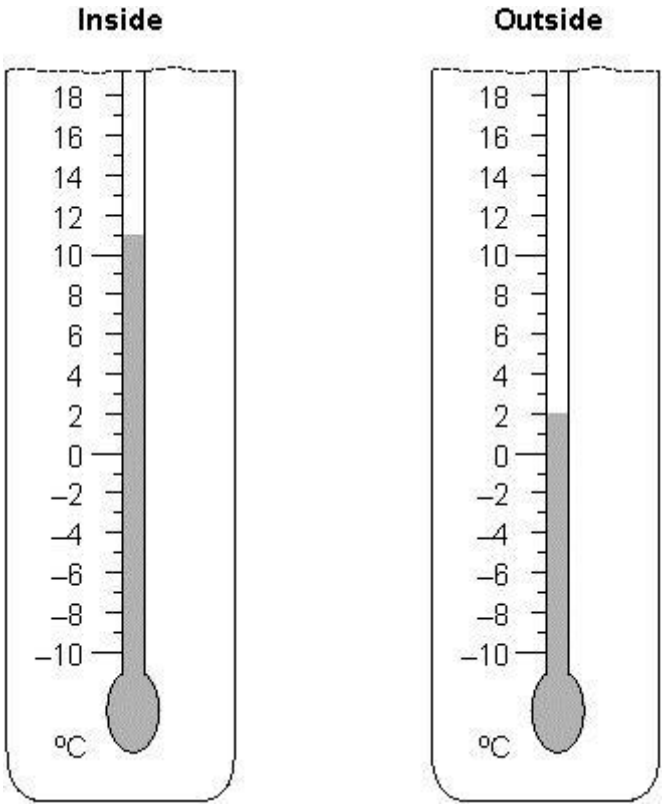
Mark with arrows the points **–1.5** and **0.45** on the number line.



2 marks

Q11.

Two thermometers show the temperature inside and outside a greenhouse on a day in January.



How many degrees **warmer** was it inside the greenhouse than outside?

°C

1 mark

Later the temperatures were

inside	outside
–1°C	–8°C

What is the difference between these two temperatures?

°C

1 mark

Q12.

A sequence starts at **500** and **80** is **subtracted** each time.

500 420 340 ...

The sequence continues in the same way.

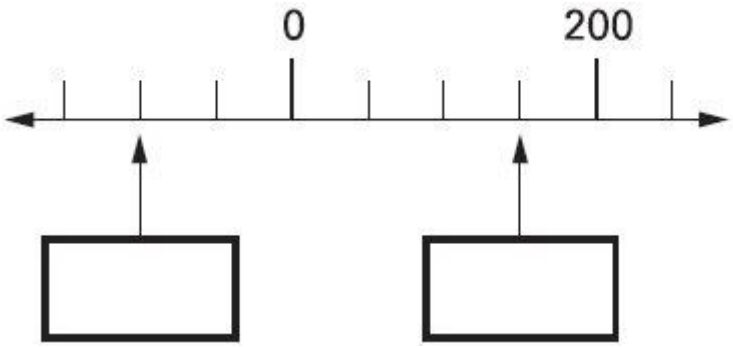
Write the **first two numbers** in the sequence which are **less than zero**.

2 marks

Q13.

Here is part of a number line.

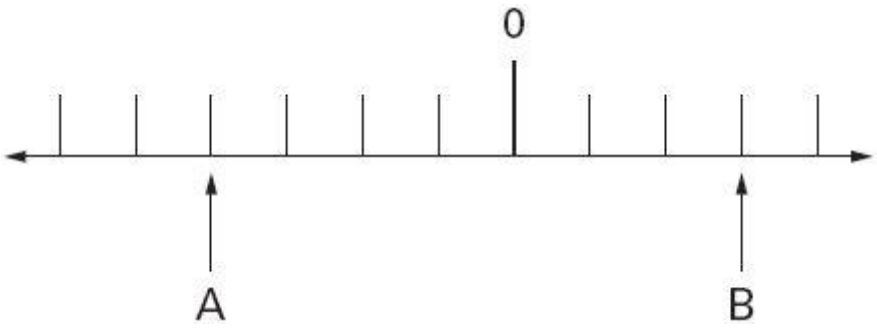
Write the missing numbers in the boxes.



2 marks

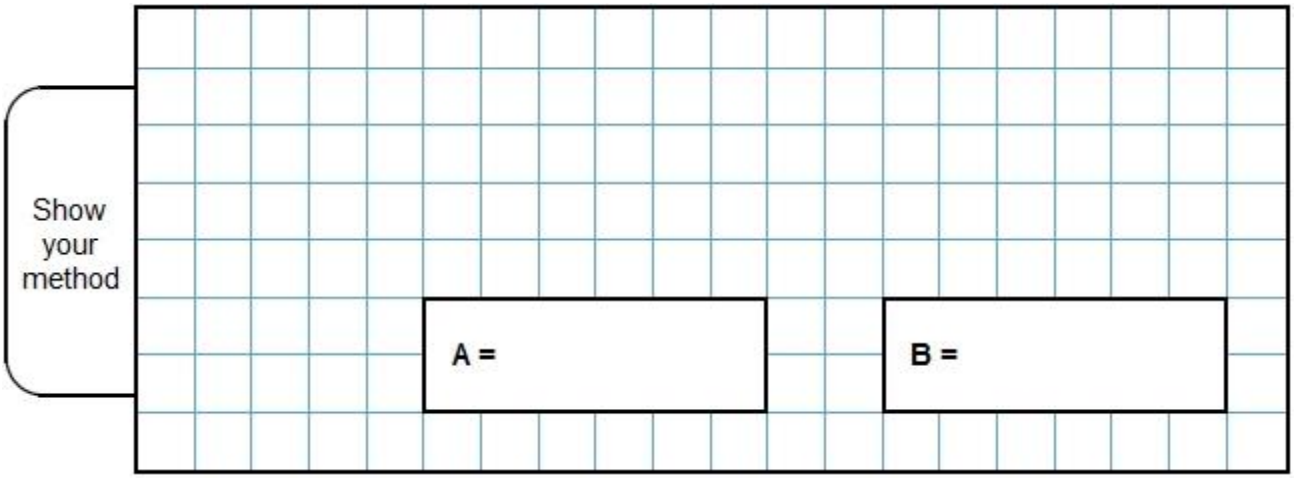
Q14.

A and **B** are two numbers on the number line below.



The **difference** between **A** and **B** is 140

Write the values of **A** and **B**.



2 marks

Mark schemes

Q1.

18

Accept –18

[1]

Q2.

- 5

Accept an answer in the range -5.2 to -4.8 inclusive

[1]

Q3.

50

Accept –50

[1]

Q4.

+2 −1 +1 *'+' signs may be omitted.*

[1]

Q5.

(−3, 1)

***Do not** accept (3−, 1)*

[1]

Q6.

−1 4 9 14 19

[1]

Q7.

Temperatures in ascending order, as shown:

−24°C −13°C 0°C 21°C 35°C

[1]

Q8.

Indicates the answer could be positive or negative and gives a correct explanation, eg

- A positive multiplied by −5 gives a negative answer, but a negative multiplied by −5

gives a positive answer

- Positive numbers will become negative, negative numbers will become positive
- If the number is 10 the answer will be –50, which is negative, but if the number is −10, the answer is 50, ie positive

Accept minimally acceptable explanation
eg
- *10 becomes negative, but −10 becomes positive*
- *+ve → −ve*
  −ve → +ve
- *−5 × −3 = 15, −5 × 3 = −15*

***Do not accept** incomplete explanation*
eg
- *−5 × 3 = −15*
- *The original number could be positive or negative so the answer could be positive or negative*

! Makes an incorrect decision, or no decision made, but explanation clearly correct
Condone provided the explanation is more than minimal

U1

[1]

Q9.

(a) Circling of numbers

–5 **AND** 3

OR –4 **AND** 4

OR –3 **AND** 5

Only these numbers are acceptable. Accept other unambiguous
indications of these numbers.

1

(b) Any two numbers which sum to –6, eg

–5 **AND** –1

OR –7 **AND** 1

*The numbers need not be from the set given in the question. Accept –6 **AND** 0 **OR** –3 **AND** –3. Accept fractions and decimals.*

1

[2]

Q10.

The gradation corresponding to –1.5 correctly indicated on the number line

1

It is not necessary for the point to be labelled –1.5

It is not necessary for the point to be marked with an arrow.

A point corresponding to 0.45 correctly indicated on the number line

1

It is not necessary for the point to be labelled 0.45

*Accept any point marked that is clearly **between** the gradations for 0.4 and 0.5*

It is not necessary for the point to be marked with an arrow.

[2]

Q11.

(a) 9

1

(b) 7

Accept –7

1

[2]

Q12.

–60 in first box.

Accept 'minus 60'

***Do not** accept '60–'*

–140 in second box

Accept 'minus 140'

***OR Do not** accept '140–'*

OR

a number 80 less than the answer given in the first box provided both numbers are less than 0

*If the answers given are '60–'and '140–'respectively, award **ONE** mark only.*

Up to 2

[2]

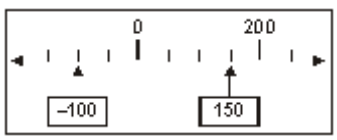
Q13.

(a) –100 written in the left-hand box.

***Do not** accept 100–*

1

(b) 150 written in the right-hand box.



1

[2]

Q14.

Award **TWO** marks for the correct answer as shown:

A = **–80** B = **60**

If the answer is incorrect, award **ONE** mark for evidence of appropriate working, eg

140 ÷ 7 = 20

Accept 'minus 80'

***Do not** accept '80–'*

*Answer need not be obtained for the award of **ONE** mark.*

*Accept for **ONE** mark:*

*A = –80 **AND** B = wrong answer **OR***

*A = –80 **AND** B = blank **OR***

*A = 80 **AND** B = 60 **OR***

*A = 80 **AND** B = –60 **OR***

*A = 60 **AND** B = –80*

Up to 2 (U1)

[2]