**Write your name, centre number and candidate number in the boxes below.**

| Surname | Other names |
|---|---|
| | |

Centre number | | | | | |

Candidate number | | | | |

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# Ordering and comparing numbers

Time allowed: 25 minutes

**Subject code** **0580**

# Mathematics

**Questions from Paper 1, Paper 2 and Paper 4**

**You must have:** a ruler marked in centimetres and millimetres, a protractor, compasses, a pen, an HB pencil and an eraser.
**You may use a calculator.**

Total marks

**/ 19**

## Instructions

- Answer every question in the space provided on this paper.
- Write in black or dark blue ink. Pencil may be used for diagrams and graphs.
- Fill in your name, centre number and candidate number above.
- Show your working: a correct method can earn marks even if the answer is wrong.
- Unless a question says otherwise, give answers that are not exact to 3 significant figures, and angles in degrees to 1 decimal place.

## Information

- This paper has 10 questions worth 19 marks in total.
- The marks for each question or part are shown in brackets, for example [3].

## Advice

- Read every question through once before you write anything.
- Use the marks in brackets to judge how long to spend on each part.
- If you finish early, go back and check your working.

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Print at 100% (Actual size) so diagrams keep their real measurements.

**1** The temperature at 07 00 is −3 °C.
This temperature is 11 °C higher than the temperature at 01 00.

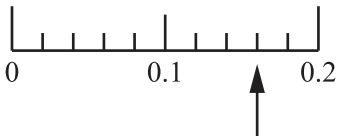
Find the temperature at 01 00.

..... °C [1]

Directed numbers Click for more variations

| | | | |
|---|---|---|---|
| **1** | −14 | **1** | |

**2** **(a)**




Write down the number the arrow is pointing to on this scale.

..... [1]

**(b)** Write these numbers in order of size, starting with the smallest.

0.42 0.06 0.5 0.078

..... < ..... < ..... < .....[1]
*smallest*

(a) Mathematical symbols (b) Ordering fractions, decimals and percentages Click for more variations

| | | | |
|---|---|---|---|
| **2**(a) | 0.16 | **1** | |
| **2**(b) | 0.06 0.078 0.42 0.5 | **1** | |

**3** −7 12 −3 2 8 −6 15 −4 −8

From the list of numbers, find

**(a)** all the numbers which are less than −5

..... [1]

**(b)** the product of the largest number and the smallest number.

..... [1]

(a) Directed numbers (b) Directed numbers Click for more variations

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| | | | |
|---|---|---|---|
| **3**(a) | −6, −7, −8 | **1** | |
| **3**(b) | −120 | **1** | |

**4** On a mountain, the temperature decreases by 6.5 °C for every 1000 metres increase in height. At 2000 metres the temperature is 10 °C.

Find the temperature at 6000 metres.

*Answer* ..... °C [2]

Directed numbers Click for more variations

| | | | |
|---|---|---|---|
| **4** | −16 | **2** | **M1** for 4 × 6.5 |

**5** Write these numbers in order, starting with the smallest.

34% π $\frac{1}{3}$ 3 $\frac{3}{10}$

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

*smallest*

Ordering fractions, decimals and percentages Click for more variations

| | | | |
|---|---|---|---|
| **5** | $\frac{3}{10}$ $\frac{1}{3}$ 34% 3 π | **2** | **B1** for 4 in the correct order<br>or **M1** for decimal equivalents to compare numbers 0.34, 3.1..,0.33, [3], 0.3 |

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**6** Paul and Sammy take part in a race.

The probability that Paul wins the race is $\frac{9}{35}$.

The probability that Sammy wins the race is 26%.

Who is more likely to win the race?
Give a reason for your answer.

*Answer* ..... because ..... [2]

Ordering fractions, decimals and percentages Click for more variations

| | | | |
|---|---|---|---|
| **6** | Sammy<br>and<br>correct reason with 25.7% oe shown | **2** | **B1** for 25.7% or 0.257... seen<br>or conversion of 26% to fraction and common denominator |

**7** $$\frac{3}{5} < p < \frac{2}{3}$$

Which of the following could be a value of $p$?

$\frac{16}{27}$ 0.67 60% $(0.8)^2$ $\sqrt{\frac{4}{9}}$

*Answer* ..... [2]

Ordering fractions, decimals and percentages Click for more variations

| | | | |
|---|---|---|---|
| **7** | $0.8^2$ | **2** | **M1** conversion of $\frac{16}{27}$ (= 0.5(9...)) and<br>$0.8^2$ (= 0.64) to decimals seen |

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**8** $-9 \quad -7 \quad -3 \quad -1 \quad 0 \quad 2 \quad 5 \quad 6 \quad 8$

From this list of numbers, find

**(a)** the highest number possible from the product of **two** of the numbers

..... [1]

**(b)** the lowest number possible from the product of **three** of the numbers.

..... [1]

(a) Directed numbers (b) Directed numbers Click for more variations

| | | | |
|---|---|---|---|
| **8**(a) | 63 | **1** | |
| **8**(b) | –432 | **1** | |

**9** Write the following in order of size, **largest** first.

sin 158° cos 158° cos 38° sin 38°

*Answer* ..... > ..... > ..... > ..... [2]

Mathematical symbols Click for more variations

| | | | |
|---|---|---|---|
| **9** | cos38 sin38 sin158 cos158 | **2** | **M1** correct decimals seen<br>0.3(74..) –0.9(271..) 0.7(88..) 0.6(15..) |

**10** $m$ is a positive integer.

Write these values in order of size, starting with the smallest.

$m$ 33% of $m$ $\frac{1}{3}$ of m 320% of $\frac{m}{10}$

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....., ....., ....., ..... [2]

*smallest*

Ordering fractions, decimals and percentages Click for more variations

| | | | |
|---|---|---|---|
| **10** | 320% of $\frac{m}{10}$ 33% of $m$ $\frac{1}{3}$ of $m$ $m$ | **2** | **B1** for three in the correct order |

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