

Place Value and Ordering Numbers

Solutions

For Pearson Edexcel GCSE Mathematics (1MA1) • Foundation tier

Each question is shown in grey, followed by the working, one step per line. The final answer is in a box. *Marks* shows how the marks are usually given in the exam, and **Tip** points out a common mistake.

1 (4 marks)

- (a) Write the number 26 405 in words.

Split the number into thousands and the rest: $26\,405 = 26\text{ thousand and }405$

26 thousand is “twenty-six thousand”.

405 is “four hundred and five”.

Answer: twenty-six thousand, four hundred and five

- (b) Write down the value of the 6 in the number 26 405

The columns are: ten-thousands, thousands, hundreds, tens, ones.

The 6 is in the thousands column.

So it is worth $6 \times 1000 = 6000$

Answer: 6000 (six thousand)

Tip: Give the value as a number (6000). Just writing “thousands” does not get the mark.

- (c) Write the number three hundred and eight thousand and twelve in figures.

Three hundred and eight thousand = 308 000

Twelve = 12

Add them: $308\,000 + 12 = 308\,012$

Answer: 308 012

- (d) Write down the value of the 3 in the number 18.634

After the decimal point the columns are tenths, hundredths, thousandths.

In 18.634 the 6 is tenths, the 3 is hundredths and the 4 is thousandths.

So the 3 is in the hundredths column.

Answer: 3 hundredths ($\frac{3}{100}$ or 0.03)

Tip: Count the columns after the decimal point: 1st = tenths, 2nd = hundredths, 3rd = thousandths.

2 (1 mark)

Write the following numbers in order of size.

Start with the smallest number.

0.7 0.075 0.57 0.705 0.07

Give every number 3 decimal places by adding zeros:

0.700, 0.075, 0.570, 0.705, 0.070

Now compare them like whole numbers: 700, 75, 570, 705, 70

In order: 70, 75, 570, 700, 705

Answer: 0.07, 0.075, 0.57, 0.7, 0.705

Tip: Adding zeros so every number has the same number of decimal places makes decimals easy to compare. More digits does not mean bigger.

3 (1 mark)

Write these numbers in order of size.

Start with the smallest number.

3 -2 -8 0.5 -2.5

Picture a number line: the further left, the smaller the number.

-8 is furthest left.

-2.5 is to the left of -2

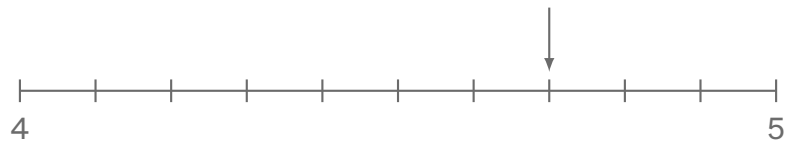
Then come the positive numbers: 0.5, then 3.

Answer: $-8, -2.5, -2, 0.5, 3$

Tip: -8 is smaller than -2 , even though 8 is bigger than 2. The further a negative number is from zero, the smaller it is.

4 (1 mark)

Write down the number marked with the arrow.



There are 10 equal steps from 4 to 5.

Each step is $1 \div 10 = 0.1$

The arrow is 7 steps along from 4.

$$4 + 7 \times 0.1 = 4.7$$

Answer: 4.7

5 (3 marks)

(a) Write down the number that is 1000 less than 20 453

$$20\,453 - 1000$$

The thousands digit is 0, so take 1 from the ten-thousands:

$$20\text{ thousand} - 1\text{ thousand} = 19\text{ thousand}$$

So the answer is 19 453

Answer: 19 453

- (b) Write down the number that is 0.01 more than 4.99

$$4.99 + 0.01$$

$$99 \text{ hundredths} + 1 \text{ hundredth} = 100 \text{ hundredths} = 1$$

$$\text{So } 4.99 + 0.01 = 5.00 = 5$$

Answer: 5

- (c) Find the number that is exactly halfway between -9 and 3

Add the two numbers and halve:

$$-9 + 3 = -6$$

$$-6 \div 2 = -3$$

Check: -3 is 6 more than -9 and 6 less than 3 ✓

Answer: -3

Tip: To find the halfway point, add the two numbers and divide by 2. Check it is the same distance from both ends.

6 (3 marks)

Work out

- (a) 23.4×1000

Multiplying by 1000 moves each digit 3 places to the left.

23.4 becomes 23 400

Answer: 23 400

Tip: Move the digits, not just the point, and fill the empty places with zeros. Do not put zeros between the digits (like 2300.4).

- (b) $605 \div 100$

Dividing by 100 moves each digit 2 places to the right.

605 becomes 6.05

Answer: 6.05

(c) 0.08×10

Multiplying by 10 moves each digit 1 place to the left.

0.08 becomes 0.8

Answer: 0.8

7 (3 marks)

Write one of the signs $<$, $=$ or $>$ in each box to make a true statement.

0.3 0.30

-6 -2

4.05 4.5

0.3 and 0.30 are both 3 tenths.

So $0.3 = 0.30$

-6 is to the left of -2 on a number line.

So $-6 < -2$

4.05 has 0 tenths and 4.5 has 5 tenths.

So $4.05 < 4.5$

Answer: $=$, $<$, $<$

Marks: 1 mark for each correct box.

8 (1 mark)

Here are four digit cards.

2	9	5	0
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Use each card once to make the smallest possible 4-digit number.

A 4-digit number cannot start with 0.

So start with the smallest of the other digits: 2.

Then put the rest in order, smallest first: 0, 5, 9.

Answer: 2059

Tip: Read the question carefully. Check your number uses every card once and has the right number of digits.

9 (2 marks)

Kasia has five digit cards.

4	0	7	2	5
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She uses all five cards to make a number.

(a) Write down the largest 5-digit odd number she can make.

An odd number must end in an odd digit: 5 or 7.

Ending in 5: put the other digits in order from largest: 7, 4, 2, 0.

That gives 74 205.

Ending in 7: the other digits in order are 5, 4, 2, 0, giving 54 207.

74 205 is bigger than 54 207, so 74 205 is the largest.

Answer: 74 205

(b) Kasia says,

‘The smallest 5-digit number I can make is 02457’

Explain why Kasia is wrong.

A 5-digit number cannot start with 0.

02457 is really 2457, which only has 4 digits.

The smallest 5-digit number is 20 457.

Answer: A 5-digit number cannot start with 0 (02457 is 2457, a 4-digit number); the smallest is 20 457

10 (2 marks)

Tom says 3.5 is halfway between 3.1 and 3.7

Is Tom correct?

You must show how you get your answer.

Find the halfway point: add the two numbers and divide by 2.

$$3.1 + 3.7 = 6.8$$

$$6.8 \div 2 = 3.4$$

Halfway is 3.4, not 3.5.

So Tom is not correct.

Answer: No, halfway is 3.4

Marks: 1 mark for $(3.1 + 3.7) \div 2$ or for 6.8. 1 mark for “No” with 3.4 shown.

11 (2 marks)

Using the information that $46 \times 38 = 1748$

(a) Work out 4.6×3.8

$$4.6 = 46 \div 10 \text{ and } 3.8 = 38 \div 10$$

$$\text{So } 4.6 \times 3.8 = 46 \times 38 \div 100$$

$$= 1748 \div 100$$

$$= 17.48$$

Check: $5 \times 4 = 20$, so about 18 is sensible.

Answer: 17.48

(b) Work out $1748 \div 3.8$

$$\text{We know } 1748 \div 38 = 46$$

3.8 is ten times smaller than 38.

Dividing by a number ten times smaller gives an answer ten times bigger.

So $1748 \div 3.8 = 46 \times 10 = 460$

Answer: 460
